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ABSTRACT

Markets can be defined as groups of people or organizations that have resources that could be exchanged for distinct benefits. Market segmentation is one strategy for market management and involves describing the market in terms of the subgroups that compose it so that exchanges with those subgroups can be more effectively promoted or facilitated. If market segmentation is to be successfully employed in the diffusion of educational innovations, dissemination strategists must understand not only the procedures necessary to isolate and focus attention on target segments, but also the constraints imposed by the educational environment that distinguish it from other private and public sector marketing environments. The effectiveness of market segmentation in disseminating three educational innovations (Minicourses; Man: A Course of Study; and Individually Guided Education) was tested in a field study using 72 schools in Chicago and California that had participated in a previous and related project. While the small sample size precluded conclusive results, enough information was gathered to prepare a guide to use of market segmentation for educational innovations. This document describes the experiment and its findings and presents the guidelines developed as a result. (Author/PGD)

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FINAL REPORT OF A PROJECT TO STUDY THE EFFECTIVENESS OF MARKETING PROGRAMMING FOR EDUCATIONAL CHANGE

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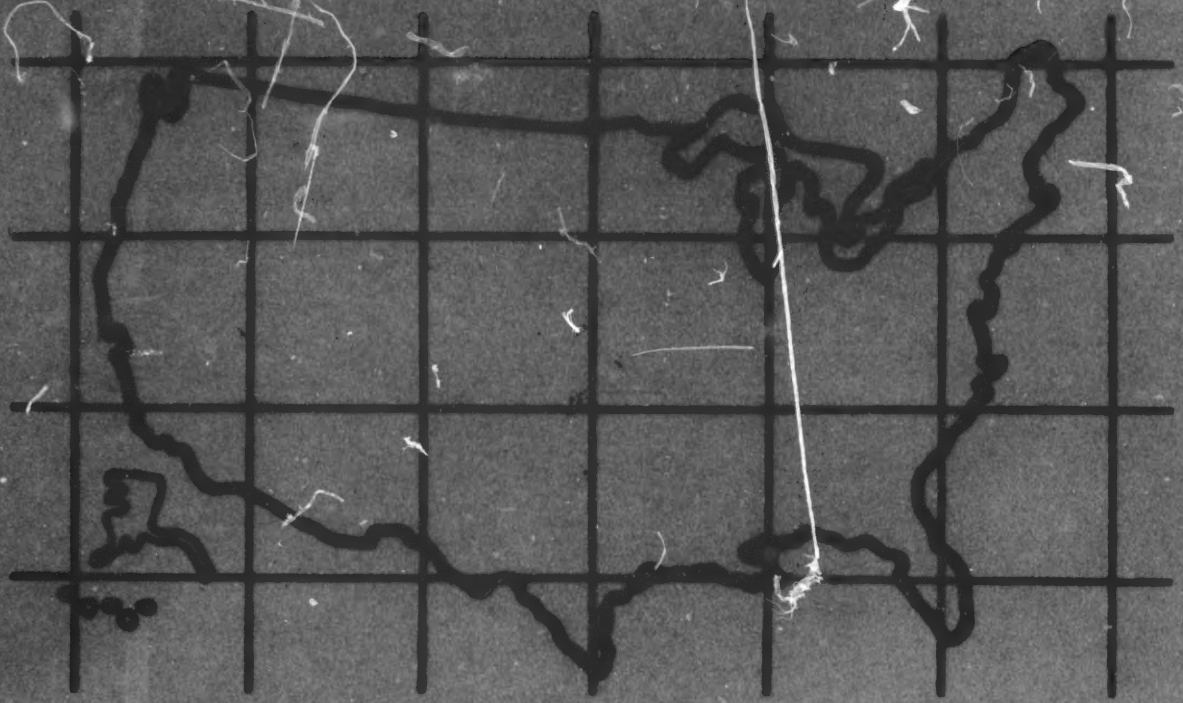

A GUIDE TO THE USE OF MARKET SEGMENTATION FOR THE DISSEMINATION OF EDUCATIONAL INNOVATIONS

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A GUIDE TO THE USE OF MARKET SEGMENTATION FOR THE DISSEMINATION OF EDUCATIONAL INNOVATIONS

Final Report of a Project to Study the Effectiveness Of Marketing Programming for Educational Change

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PREFACE

The reported research is directed toward the adaptation of a marketing approach to the field of educational change. It focuses on an important concept, that of market segmentation, and how it can be applied to the diffusion of educational innovations.

There is an attempt here to emphasize non-advocacy situations--situations in which the goal is meaningful educational change rather than widespread use of a specific innovation. However, many educational problems can be addressed through the application of one or more specific products, processes or ideas. Thus, the change goal in both advocacy and non-advocacy situations will often involve bringing educational innovations into wider use. For convenience, we will discuss the concept of market segmentation as it applies to the diffusion of existing innovations, keeping in mind that a total segmentation strategy involves selecting or designing the innovation which meets the need, rather than starting with the innovation and making efforts to "push" it regardless of need.

Also for convenience, our discussion is framed in terms of a dissemination specialist or strategist. This is simply that person or agency that is charged with developing strategies for solving educational problems. It can refer to one person, several persons, or an institution, and can be either external or internal to the target system.

This report is divided into three parts. The first is an introduction which presents the concept of market segmentation and explains how it can be applied to educational change. The second, "The Experiment," presents and discusses results of a field experiment which was designed to demonstrate how market segmentation can be used to develop a marketing strategy for

selected educational innovations. The third, "Using Market Segmentation for Educational Markets," is intended to guide the educational dissemination strategist in applying the concept of market segmentation to dissemination tasks. Building from what was learned in the field experiment as well as through exploration of the marketing literature, the third part explains when and how to use market segmentation and presents variables that could be used as bases for segmentation. It then examines these alternative segmentation bases, focusing on the instrumentation, costs, and conditions for their effective use by educational change managers. This part is presented in the hope that others may avoid pitfalls we experienced and perhaps successfully apply our model or other models.

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PART I: INTRODUCTION

Bringing educational innovations into wider use involves regulating the level (and sometimes the nature) of demand--i.e., the proportion of practitioners with both desire and ability to adopt. The problem of regulating demand for a product requires analysis of the structure of the market for that product. This involves four steps: first, market definition--determining who is included in a market; second, market segmentation--identifying distinct subgroups in the market; third, market positioning--determining the "target market range," or that part of the market which will be served; and fourth, market orchestration--determining an approach for dealing effectively with the different segments included in the target market range (Kotler, 1975).

Market analysis is conducted to permit more efficient and effective allocation of resources over an entire target population. Most discussions of market analysis focus on the second step, market segmentation. It is here that a revealing picture of the market emerges (Sikorski and Hutchins, 1974).

THE CONCEPT OF MARKET SEGMENTATION

The concept of market segmentation is basically simple, defined by Kotler (1972) as ". . . the subdividing of a market into homogeneous subsets of consumers, where any subset may conceivably be selected as a market target to be reached with a distinct marketing mix."

Although segmentation research and applications are most advanced with respect to consumer goods markets, the strategy of segmentation is hardly restricted to such markets, or even to commercial markets in general. The term "market" itself generalizes considerably beyond its more common

business context: "A market is a distinct group of people and/or organizations that have resources which they want to exchange, or might conceivably exchange, for distinct benefits," and marketing is the planning and management of such exchanges (Kotler, 1972).

Thus, anyone involved in managing, promoting, or facilitating exchanges is dealing with a market and conducting marketing activities. This could include a political candidate seeking election to office, a government urging its citizens to conserve energy, or a developer promoting the adoption of a particular innovation.

Whatever its context, the effective management of exchanges requires some knowledge of the target market. Market segmentation is one approach for gaining and using such knowledge. Most simply, a strategy of market segmentation involves describing a market in terms of the subgroups which comprise it and using that information to more effectively promote or facilitate desired exchanges with one or more of the subgroups.

From this perspective, market segmentation can be seen as commonplace. Though the concept is most commonly associated with commercial business enterprises, segmentation strategies are used in a variety of educational situations. For example, the American educational system has always been based on a number of segmentation schemes. To distribute their instructional services more efficiently, educational institutions segment students (an educational analog of "consumers") into groups with homogeneous responses to the various types of instruction. Students with similar learning capabilities are grouped together. Traditionally, the segmenting variable has been age. However, educational innovations such as non-graded schools are based on the recognition that age is not always a valid segmenting variable, since grouping by age alone may frustrate students

with abilities greater or less than average for their age group. Thus, some schools instead use measured ability as a segmentation variable.

Other examples include the marketer of educational products who sends sales personnel to the largest school districts, thus segmenting the market by size; the change agent who selectively channels information about curriculum alternatives to different schools based on what is known about their needs, thus segmenting the market by need; and the physical-education teacher, who gives different lessons to female and male students, thus, segmenting the market by sex.

In each case, it is assumed that the differential treatment of subgroups will improve or otherwise facilitate the exchange in question. Educators group their students for more appropriate educational instruction in order to achieve better response from students. Marketers of educational products recognize the economic necessity of visiting some but not all districts, aiming their efforts at those most likely to adopt. Educational change agents must show some impact if they are to maintain their jobs. More precise targeting of information is expected to result in more and better use of the information and, thus, in greater educational improvement. And the teacher tailors the "product" (a lesson) in the hope of achieving the personal satisfaction and professional rewards associated with increased performance by students.

As is evident by these examples, using market segmentation to promote or facilitate exchange is a common, almost "everyday" practice, employed frequently, often informally or even unintentionally. However, as is elaborated in Part III of this report, an unplanned or injudicious application of market segmentation is generally ineffective and may even

be costly or dysfunctional. If inappropriate segmentation variables are chosen, the marketing effort may be off-target, or may achieve the opposite of the intended reaction from the target group. If the marketer uses time and effort to collect data on how segments differ but does not learn how to communicate selectively with them, the effort is wasted. Or one may collect data that distinguishes subgroups but does not have marketing implications, or distinguishes subgroups for which the marketing implications are impractical or infeasible to consider.

MARKET SEGMENTATION FOR EDUCATIONAL INNOVATIONS

In commercial settings, the concept of market segmentation has become increasingly important as the economy has moved from a production and finance orientation to one of satisfying consumer needs. As Frank et al. (1972) point out, this parallel development is no accident. They quote Smith (1956), as saying "segmentation . . . represents a rational and more precise adjustment of product and marketing effort to consumer or user requirements." That is, the notion of market segmentation simply acknowledges the fact that potential customers comprising a market are not all alike and what is needed to meet the needs of one customer may be very different from what is required to satisfy another. Under certain conditions, dividing potential customers into internally homogeneous segments is a more effective way to reach customers than treating them as if they were all alike.

The task of disseminating educational innovations has also become more "consumer" oriented. There is a shift from a product-advocacy approach, where the concern is with increasing the number of exchanges, to an approach where developers are concerned with the impact, or meaningful problem-solution, associated with exchanges.

Significant educational change is a complex process; when it depends on the implementation of one or more new products or practices, these must be compatible with the system in question. It is becoming more apparent that there is a significant role for market segmentation as a strategy for improving this compatibility. If the educational developer has information on subgroups in the target population, interventions can be tailored to the special needs of groups that he is most concerned with affecting.

However, in using this or any marketing concept for the process of educational change, one must keep in mind the distinctions between private sector marketing, from which most segmentation research and application has come, and public sector marketing, which is the domain of many educational diffusion projects.

During the last five years, there has been a growing interest in "social marketing"--the use of marketing techniques to promote social programs. An increasing number of public sector organizations, including governmental and not-for-profit organizations, have been using the marketing tools and strategies of private sector marketers to assist in achieving institutional goals. Though many of the early social marketing efforts were restricted to advertising, Kotler and Zaltman (1971) view social marketing as a much broader concept:

> "Social marketing is the design, implementation, and control of programs calculated to influence the acceptability of social ideas, and involving consideration of product planning, pricing, communication, distribution, and marketing research."

The diffusion of innovations to educational institutions has elements of both social and business marketing. Though the educational adopters (schools) are non-profit, public sector organizations, the researchers, developers, and distributors of innovations come from

both the public sector (e.g. OE, NIE, Far West Laboratory, etc.) and the private sector (e.g. publishers). Thus, though improvement of education is itself a social goal, the principal organizations involved are both socially and economically oriented.

Kotler (1975) points up several differences between profit making and non-profit organizations which may affect the application of marketing concepts (such as segmentation) to the marketing of eudcational products and services.

One difference is that non-profit organizations often lack a well-defined measure of performance, whereas organizations in the private sector have a clear objective measured in dollars of profit. Without a well-defined performance measure, it is difficult for a marketer to estimate the success or failure of a particular marketing strategy in terms of the organization's ability to meet its objectives. In contrast, a private sector marketing program can usually be evaluated by its contribution to profits.

Another important difference is that non-profit organizations are more subject to public review, government regulation, and criticism than are private organizations. Business practices used by private sector organizations may be unacceptable in the public sector. For example, a marketing strategy of concentration on a single market segment may be the most profitable means of selling a particular product. However, if the "seller" is a non-profit organization and the product is within the public domain, such a strategy may be unethical, if not illegal. This may or may not be the case with specific educational innovations, depending on the nature of the product and the means by which development and dissemination efforts are funded.

Thus, in applying the concept of market segmentation to educational settings, the dissemination strategist, though he may feel intuitively that it can increase his effectiveness, may have trouble demonstrating this, due to ambiguous goals and measures of performance. Even if he can, the strategic implications may not be acceptable as educational change goals.

These and other considerations are discussed again in Part III of this report. For now, it is useful to keep in mind three important considerations in using marketing concepts for the diffusion of educational innovations:

1) Usually goals and indicators of success will be inadequately defined. As Berman and McLaughlin (1975) point out,". . . evaluations of (educational) innovations are beset with conceptual and methodological problems of knowing what to measure and of measuring it validly."
2) In non-advocacy situations, the strategist must frequently avoid what may be the most obvious or simplest implications for marketing strategy, e.g. using hard-sell techniques to push existing products or ignoring highly resistant market segments in favor of easier but less-needy groups.
3) Often the treatment of educational markets will require much more than making available a particular product--it may include such activities as political lobbying to influence policy relevant to different market segments, providing special technical assistance, even providing funding or "seed money," if the implication is that this tactic will be effective.

Thus, it can be seen that if market segmentation is to be successfully employed in the diffusion of educational innovations, dissemination strategists must understand not only the procedures necessary to isolate and focus attention on target segments, but also the constraints imposed by the educational environment which distinguish it from other private and public sector marketing environments.

Part II of this report presents the results of an experiment conducted by Far West Laboratory to demonstrate the use of segmentation in marketing three selected educational innovations.

PART II: THE EXPERIMENT

Part II describes a field study that was conducted to demonstrate the effectiveness of market segmentation in disseminating educational innovations. The experiment stemmed from the findings of a previous project (NIE contract #NE-C-00-3-0109), which divided 75 schools in Chicago and California into homogeneous groups or segments for each of three educational innovations. The current study used this segmentation scheme to test the proposition that a dissemination strategy targeted to particular segments of a population of schools can be more effective than a general, undifferentiated strategy (i.e., one targeted to the population as a whole).

The commentary is presented in three sections, describing: 1) the experimental procedure, 2) the results of the experiment, and 3) a discussion of factors affecting these results. Included in this third section are brief reports of: (a) a similar (replication) experiment carried out during the 1974-5 school year; and (b) a follow-up telephone survey of participants in the original experiment.

PROCEDURES

The particular segmentation basis used in this study is a "discrepancy profile" of schools, derived by measuring (along a number of dimensions) the "distance" of the innovation from the needs, resources, and perceptions of potential adopters (Sikorski and Hutchins, 1974). Discrepancies occur because the nature of the product is incompatible with the needs and wants of the user or because the resources necessary to use the product are not available to the user. Appendix 1 lists 34 discrepancies which were used to determine each school profile. Examples include: 1) the innovation is not as structured as the user would like; 2) the innovation does not provide feedback of results as quickly as the user would like; 3) the innovation

involves more disruption than the user can tolerate; 4) the innovation costs more than the user can afford. (See Sikorski and Hutchins, 1974, for a more complete description of discrepancy analysis.)

The discrepancy profile was used to segment the Chicago and California schools into homogeneous subsets for each of three educational innovations. Each segment contained schools with similar discrepancy profiles for the given innovation. It was hypothesized that a dissemination strategy targeted to particular segments of the population of schools would be more effective with those segments than a general, undifferentiated strategy.

In dissemination efforts, product adoption is commonly the criterion for measuring effectiveness. However, adoption is not a single step but is, in fact, a multistage process consisting of awareness, interest, evaluation, trial and decision. (Rogers and Shoemaker, 1971; Zaltman et al., 1973.) Due to the complexity of the adoption process and the improbability that a significant number of adoptions could occur within the short time frame of our experiment, this study focused on the intermediate stages of the adoption process (i.e., awareness, interest, evaluation, and trial) rather than on the ultimate decision to adopt.

The Innovations

The three innovations used in this study represent diverse R&D outcomes. They are Minicourses, a teacher inservice program developed by the Far West Laboratory; Man A Course of Study (MACOS), a 5th-6th grade social studies curriculum distributed by Curriculum Development Associates; and Individually Guided Education (IGE), an individualized learning program developed by the Institute for Development of Educational Activities. More detailed information about these products can be found in the Far West Laboratory publication, "Promoting Change in Schools: A Diffusion Casebook" (Turnbull et al., 1974).

Experimental Design

For each product, Q-factor analysis was used to divide schools into segments with homogeneous discrepancy patterns. Each segment emerging from the Q-analysis represented a group of schools whose needs, attitudes, resources, and perceptions of the innovations were similar--resulting in similar discrepancy profiles. To provide meaningful segment sizes (in light of the small number of schools participating in the study) for each innovation, a particular segment was selected as the "target" segment and the remaining segments were combined to form the "non-target" segment.

It was intended that the target segment for each innovation be the segment whose discrepancy profile differed most from the profile of the population as a whole, and that this difference be based on the type of discrepancies contained in the profiles (i.e., major discrepancies of the general population would be less critical to the schools in the target segment than to those in other segments of the population, while discrepancies most critical to the schools in the target segment would be less important to the general population.) This procedure was used in selecting the target segment for both MACOS and Minicourses.

However, for IGE the discrepancies were virtually identical in all of the segments, so it was not possible to differentiate the segments according to discrepancy type. Instead, selection of the target segment was based on the magnitude of the discrepancies. The higher the magnitude, the more critical the discrepancy, indicating greater resistance toward the innovation. The target segment chosen for IGE was the le[illegible] discrepant segment (i.e., the segment with the least resistance). Thus the target segment was less resistant toward IGE than the population in general.

A dissemination strategy, or treatment, addressing relevant discrepancies, was then devised for each innovation's target segment. In addition, a general treatment for each innovation, based on the average discrepancy profiles of all schools, was devised. The general treatment represented the type of marketing campaign which would be employed if segmentation was not used. Differences between results obtained from using these two strategies could then be used to measure the incremental effectiveness of market segmentation.

For each innovation, schools were stratified according to location, grade span, school size, and district size. They were then randomly assigned to experimental or control groups to insure proper identification of treatment effects. Thus, half of the schools in the target segment received the target treatment while the other half received the general treatment; half of the schools in the non-target segment received the general treatment and half received the target treatment.

Hypothesis

To test the effectiveness of market segmentation within the context of our experimental design, it was hypothesized that for each innovation,

1) the dissemination strategy devised for the target segment would be more effective with that segment than the general treatment would be, and
2) the target strategy would be relatively* more effective with the target segment than with the other (non-target) segments.

The expected degree of effectiveness is illustrated in the following matrix:

*The target strategy may not be absolutely more effective with the target segment, if that segment is more resistant to innovation than the other segments.

SEGMENT	TREATMENT: Target	TREATMENT: General
Target	A	B
Non-target	C	D

To substantiate the first part of the hypothesis, the target treatment must be more effective with the target segment than the general treatment (i.e., "A" must be greater than "B"). To substantiate the second part of the hypothesis, the target treatment must be relatively more effective with the target segment than with the non-target segment. This means that A minus C should be greater than B minus D.

Treatments

The treatments developed for this campaign consisted of direct-mail brochures. (See Appendix 2 for samples of the treatments.) To focus attention on the critical issues, only major discrepancies were addressed. Identical discrepancies were treated in both the target (high-intensity) and general (low-intensity) campaigns for IGE. The only difference between the two campaigns was a personal letter which accompanied the brochure in the high-intensity (target) treatment. The MACOS and the Minicourse treatments addressed discrepancies of the target segment and/or the general audience (e.g., if "cost" was a major discrepancy in the general, non-segmented audience--which includes those schools in the target segment--it would be treated as a general discrepancy; if it was also a major discrepancy in the target segment, it would also be treated in the target campaign.) Appendix 3 contains an explanation of the discrepancies treated in each segment. The treatments were pretested in local schools during the latter part of 1974.

The treatments were administered to 72 of the original 75 schools. (Three schools in the original study no longer exist.) Identical brochures for each product were sent to the principal and two key decision makers (usually teachers) in participating schools. These were the same individuals who had participated in the earlier study wherever possible. (Ninety-two percent of the former respondents participated.) If a school received multiple-product treatments, the principals were usually the only individuals receiving brochures for more than one product.

The treatments consisted of direct-mailings. The first mailing took place in late January 1975 (this is the optimal time to conduct this type of direct-mail campaign in schools as adoption considerations occur in early spring.) A second mailing was sent three weeks later. The only difference between the two mailings, for MACOS and Minicourses, was the color of the brochure. For IGE, those not responding to the initial letter received a copy of the letter and a second brochure identical to the first. The mailings were staggered so that no more than one product's brochure would be received on the same day. Each of the brochures contained a coupon, which could be returned (with no obligation) for a free preview kit that explained the product in more detail.

A separate post-treatment questionnaire was developed for each product. These were administered before sending the preview kits, so that the differential effects of the treatments would not be confounded. Remaining questionnaires were sent out by late March, 1975. They measured changes occuring in the discrepancy measures following the treatments, knowledge of the product(s), the present adoption status of the school with regard to the product(s), organizational factors at the school which might affect the adoption decision, and reactions to the brochures. Eighty

percent of the participants completed the questionnaire, representing at least partial response from 90% of the schools. Samples of the questionnaires are in Appendix 4.

The effectiveness of the treatments was measured by school discrepancy changes and preview kit requests. These indicate the position of the school in the adoption process (i.e., awareness of the product, interest in the product, attitude changes and evaluations regarding the product, trial of the product, product adoption.) A school may be in one or more of these phases simultaneously. Therefore, these reflect the effectiveness of the treatments in initiating and advancing our sample of schools in the adoption/consideration process.

For categorical data regarding segment sizes, treatment groups, participants, etc., see Appendix 5.

A similar experiment using a slightly larger sample of schools and a somewhat different time frame was completed during the 1974-75 school year. This study is briefly described following discussion of the results of the study presented here (page 49).

In addition, an informal follow-up study of the original sample of schools was conducted in November 1975. A staff member conducted telephone interviews with school principals to determine if any adoption decisions had been made and if so, whether these tended to substantiate the hypothesis. Results of this follow-up study are also reported following the Discussion Section (page 51).

RESULTS

The experimental results are presented in three sections. The first section, "Frequency Data," discusses overall response to the treatments. It begins by examining responses of individuals to the brochures in general, and then analyzes reactions of schools to the three product treatments. The second section, "Segmentation Results," examines the responses of different segments of schools to the various treatments. The third section discusses organizational variables in relation to market segmentation.

Frequency Data

Analysis of Individual Response

Prior to the treatments, only 10% of the participants* were aware that the products existed. In contrast, the post-treatment questionnaire indicates that at least 70% of the participants now have some knowledge of the products (see Table A).

Table A: Knowledge of the Product

	% of total participants
Never heard of the product	9
Know a little about the product	47
Know the product fairly well	19
Know the product very well	4
No response	21

* 378 individuals participated in this study. Since some of them received more than one product's treatment, a "participant" has been defined as an individual receiving one treatment; an individual receiving treatments for two products would be considered as two participants, etc. (Appendix 5 contains specific categorical data.) There were no significant differences in responses between those individuals receiving multiple product treatments and those receiving a single treatment.

Although our brochures may not be totally responsible for this awareness, they no doubt contributed to it, as at least 53% of the participants remembered the brochures (see Table B). Product awareness is the first step in the adoption process--followed by interest, evaluation, trial, and adoption. Thus, we have succeeded in involving a key portion of our audience in this adoption process.

Table B: Remembered Brochure

	% of total participants
Not at all	22
Vaguely	34
Clearly	19
No response	25

Table C indicates how well the brochures were read. Most people skimmed them (27%).

Table C: How Well Brochure Read

	% of total participants
Thoroughly	11
Partially	15
Skimmed	27
Not at all	18
No response	29

An attempt was made to see if the information contained in the brochures enabled the recipients to form an opinion of the product. This is a measure of the brochure's ability to involve the audience in the "evaluation" phase of the adoption process, thereby moving them closer to an adoption decision. Twenty-one percent of the participants were able to form an opinion of the product after reading the brochure.

Most of the opinions formed were favorable (see Table D).

Table D: Opinions of the Product After Reading the Brochure

	% of participants forming opinions
Very favorable	22
Somewhat favorable	60
Somewhat unfavorable	14
Very unfavorable	4

Three different principals said they would like to adopt the product as a result of reading the brochure.

The brochures generated some discussion about the product, with 28% of the recipients saying they spoke with others about the product after receiving the brochure; usually it was with someone in their own school (see Table E).

Table E: Talked With Others About Product After Receiving Brochure

	% of total participants
Spoke with others in same school	23
Spoke with others outside of school	2
Spoke with others both outside of and in same school	3
Spoke with nobody	41
No response	31

Individual Coupon Response. Forty-one participants asked for product preview kits. Twenty-three of these requests came from the first mailing of brochures, and eighteen came from the second mailing. However, an individual response rate for these requests is meaningless, since each participating school was limited to one preview kit per product. (Fifteen schools, representing 10% of the total sample, specifically noted that they had decided to send only one coupon per product when requesting the preview kit.) A later section contains "school" response rates for each product's preview kit requests.

Analysis of School Response

This section analyzes the schools' response to the treatments. Four factors are examined for each product: 1) change in adoption status between pre- and post-treatment measures, 2) coupon response for a product preview kit, 3) product fit with the needs of the school, and 4) changes in the discrepancies.

IGE: *Change in School Adoption Status*. In the case of each of the products, this change reflects our treatments as well as other outside influences affecting adoption status, such as promotion by the distributor, placement of the product on state adoption lists, or derogatory remarks about the product in the press.

For IGE there were no dramatic changes in overall adoption status between the premeasure and post-treatment measure (see Table F).

Table F: Change in School Adoption Status for IGE*

Pre-Measure Adoption Status	Post-Measure Adoption Status						Total # of Schools	% of Total Schools
	Non-Adopters	Considering Now	Considered & Rejected	Adopted	Don't Know	No Response		
Non-Adopters	31	3	2	0	2	2	40	76%
Considering Now	2	1	0	0	1	1	5	9%
Considered & Rejected	4	1	1	0	1	1	8	15%
Total Number of Schools	37	5	3	0	4	4		
Percent of Total Schools	70%	9%	6%	0%	8%	7%		

*Numerals indicate number of schools in each category.

In the post-treatment measure, three percent of the schools (all non-adopters) indicated they had a product similar to IGE.

IGE: *Coupon Response*. Thirty percent of the schools (16 schools) requested more information about the product. This response is excellent for this type of direct-mail marketing campaign. These schools are in the "interest" phase of the adoption process.

IGE: *Product Fit*. Most schools thought that the product fit their school well, which indicates a favorable attitude toward the product (see Table G).

Table G: Product Fit: IGE

	% of total schools
Well	59
Not well	13
Don't know	13
No response	15

IGE: *Discrepancy Changes*. Identical discrepancies were treated in both the target and the general brochures. The difference between the premeasure and post-treatment measure indicates that each of the discrepancies was successfully reduced. (For specific data regarding composite discrepancy change, see the section on Segmentation Results.)

Minicourses: *Change in School Adoption Status*. There was a noticeable change in adoption status among the schools in our sample. As can be seen from Table H, there has been a shift towards product adoption since the premeasure. Seven percent of the schools have adopted the product, and those presently considering adoption rose from 4% to 13%. Meanwhile the non-adopters declined from 70% to 51% of the schools.

This change in adoption status may be due in part to marketing efforts by the distributor in these geographic areas.

Minicourses: *Coupon Response*. Previous exposure to the product is reflected in the low number of preview kit requests. Only 4% of the schools (two schools) requested preview kits. It should be noted, however, that this kit had to be returned within a two-week period, which may have discouraged some schools from responding.

Minicourses: *Product Fit*. There was a positive attitude toward product fit, with 59% of the schools feeling that the product fit their needs well (see Table I).

Table H: Change in School Adoption Status for Minicourses*

Pre-Measure Adoption Status	Post-Measure Adoption Status							
	Non-Adopters	Considering Now	Considered & Rejected	Adopted	Don't Know	No Response	Total # of Schools	% of Total Schools
Non-Adopters	24	3	2	3	0	9	41	73%
Considering Now	1	1	0	0	0	0	2	4%
Considered & Rejected	4	3	4	1	1	0	13	23%
Total Number of Schools	29	7	6	4	1	9		
Percent of Total Schools	51%	13%	11%	7%	2%	16%		

*Numerals indicate number of schools in each category.

Table I: Product Fit: Minicourses

	% of total schools
Well	59
Not well	14
Don't know	9
No response	18

Minicourses: *Discrepancy Change*. Seven of the nine Minicourse discrepancies that were treated have successfully been reduced; two of them increased--"cost" and "space". Since these two discrepancies tend to be associated with fixed conditions, they are not as susceptible to attitude change, which was the main objective of our treatments. (For specific data regarding composite discrepancy change, see the section on Segmentation Results.)

MACOS: *Change in School Adoption Status*. The most noticeable change in adoption status is the number of schools which have adopted MACOS--15% of our total sample (see Table J). This may reflect, in part, the marketing effort of the MACOS distributors in these geographic areas--particularly in California, where MACOS is being considered for the state adoption list.

Table J: Change in School Adoption Status for MACOS*

Pre-Measure Adoption Status	Post-Measure Adoption Status							
	Non-Adopters	Considering Now	Considered & Rejected	Adopted	Don't Know	No Response	Total # of Schools	% of Total Schools
Non-Adopters	14	3	0	3	1	1	22	55%
Considering Now	2	0	2	1	1	1	7	17%
Considered & Rejected	3	2	2	2	1	1	11	28%
Total Number of Schools	19	5	4	6	3	3		
Percent of Total Schools	48%	13%	10%	15%	7%	7%		

*Numerals indicate number of schools in each category.

MACOS: *Coupon Response*. The coupon response rate was high, with 28% of the schools (11 schools) requesting preview kits.

MACOS: *Product Fit*. Most schools (53%) felt that the product fit the needs of their school well (see Table K).

Table K: Product Fit: MACOS

	% of total schools
Well	53
Not Well	10
Don't Know	25
No response	12

MACOS: *Discrepancy Change*. Of the eight discrepancies that were treated for MACOS, six were successfully reduced. Two discrepancies increased slightly--"subject matter" and "early/late feedback". These tend to be associated with fixed conditions and therefore are not as susceptible to attitude change. (For specific data regarding composite discrepancy change, see the section on Segmentation Results.)

Summary of Frequency Data

The brochures were well received and significantly increased product awareness. Most opinions formed about the products were favorable, and most respondents thought the products would fit well into their schools. As a whole, the coupon return (i.e., preview kit requests) was extremely high relative to other direct-mail campaigns of this type. Most discrepancies were lessened to some extent; however, the decreases were not as large as anticipated. This was particularly

true for those discrepancies associated with fixed conditions, which informational treatments are unlikely to affect.

Segmentation Results

As stated in the "Procedures" section, it was hypothesized that a market segmentation strategy can be more effective than a general, undifferentiated strategy for disseminating educational innovations. In the context of our experimental design, this means that 1) a dissemination strategy targeted to a particular segment of a population of schools (the target segment) will be more effective with that segment than a general strategy aimed at the entire population, and 2) the target strategy will be relatively more effective with the target segment than with the other segments (the non-target segment). The hypothesis was tested for each of the three educational innovations--Minicourses, MACOS, and IGE.

For each innovation, the effectiveness of the dissemination strategies was measured in terms of 1) the lessening of discrepancies in schools, and 2) preview kit requests by schools. These results are explored in the following sections:

Discrepancy Change

According to the experimental hypothesis, one would expect to find: 1) the target treatment to be more effective than the general treatment at reducing the target segment's discrepancies, and 2) the target treatment to reduce the discrepancies of the target segment relatively more than it would the discrepancies of the non-target segment.

Table L summarizes the changes in discrepancies (according to innovation) for each of the different segment/treatment combinations. A positive number in the table indicates a reduction in the discrepancies.

Table L : Summary of Change In Discrepancies*

Treatment

IGE

Segment	(High Intensity) Target	(Low Intensity) General	
Target (least resistant)	.40	.48	.44
Non-target (most resistant)	.63	.78	.70
	.52	.65	

MINICOURSES

	Target	General	
Target	.10	.29	.19
Non-target	.09	.37	.23
	.10	.34	

MACOS

	Target	General	
Target	.18	-.21	-.01
Non-target	-.18	.54	.18
	-.02	.20	

*Numbers indicate average change in discrepancies treated, between premeasure & post measure--positive number indicates reduction in discrepancy (range -4 to +4 with 0 indicating no change)

Although none of the individual changes is statistically significant (possibly due to small sample size--an issue to be dealt with in the Discussion section) they do indicate trends. In the case of each innovation, the target treatment was successful in reducing the discrepancies in the target segment. However, only in the case of MACOS was the target treatment more successful than the general treatment in reducing the discrepancies of the target segment. Thus, the first part of the hypothesis was supported only in the case of MACOS.

The second part of the hypothesis was supported by each of the three innovations. This means that for each of the innovations the target treatment was relatively more effective in reducing the discrepancies of the target segment than in reducing the discrepancies of the non-target segment.*

Preview Kit Requests

Table M summarizes the results for preview kit requests. In general, the target treatment was more effective than the general treatment in stimulating requests for preview kits. The preview kit requests for IGE substantiate the hypothesis. More target schools that received the target (high-intensity) treatment requested IGE preview kits than those that received the general (low-intensity) treatment (.50 vs .18); and this target treatment was relatively more effective in stimulating requests from the target segment than it was in stimulating

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*The "relative effectiveness" is calculated by subtracting the discrepancy change of the non-target segment receiving the target treatment from the discrepancy change of the target segment receiving the target treatment. This difference should be greater than the difference derived by subtracting the discrepancy change in the non-target segment receiving the general treatment from the discrepancy change in the target segment receiving the general treatment. For an explanation of this process, see the "Procedures" section (page 13).

Table M: Preview Kit Requests

IGE

	Number of schools	Number requesting additional information	Percent requesting additional information
Target Segment (least resistant)			
High Intensity Treatment	12	6	50%
Low Intensity Treatment	11	2	18%
Non-Target Segment			
High Intensity Treatment	15	5	33%
Low Intensity Treatment	15	3	20%
TOTALS	53	16	30%

MINICOURSES

	Number of schools	Number requesting additional information	Percent requesting additional information
Target Segment			
Target Treatment	8	0	0%
General Treatment	7	1	14%
Non-Target Segment			
Target Treatment	20	0	0%
General Treatment	21	1	5%
TOTALS	56	2	4%

MACOS

	Number of schools	Number requesting additional information	Percent requesting additional information
Target Segment			
Target Treatment	9	3	33%
General Treatment	7	1	14%
Non-Target Segment			
Target Treatment	12	5	42%
General Treatment	12	2	17%
TOTALS	40	11	28%

requests from the non-target segment (.17 vs -.02). The requests for MACOS preview kits do not fully support the hypothesis. Although the target schools that received the target treatment requested a higher percentage of preview kits than the target schools that received the general treatment (.33 vs .14), the target treatment was not relatively more effective in stimulating requests from the target segment than it was at stimulating requests from the non-target segment (-.09 vs -.03). The number of schools requesting Minicourse preview kits was too few to draw any conclusions.

Organizational Variables

Numerous researchers have found relationships between structural characteristics of organizations and degree of innovativeness (e.g., Baldridge, 1974; Zaltman et al., 1973). In particular, large complex organizations with a high degree of centralization of decision making, but informal or "open" channels of communication, are more likely to engage in the early stages of innovative behavior (e.g., awareness, interest, trial) than organizations lacking these characteristics.

We attempted to measure these characteristics in each school to determine their relationship to changes in discrepancies. The measures used were adapted from Zaltman et al. (1973), and used the number of job titles as a measure of complexity; the number of people consulted in curriculum/program adoptions as a measure of centrality; and the number of rules and regulations relating to change as a measure of formality. Table N shows the changes in discrepancies of schools as a function of these organizational factors. It can be seen that the differences are not large (none significant at the $P < 05$ level). One possible reason for this is a "bunching" effect which occurred for all questions used to measure the three organizational characteristics--most schools indicated

Table N: Relationship Between Changes in Discrepancies And Organizational Variables*

	Innovation		
	IGE	MACOS	MINICOURSE
Number of People Consulted			
No one, 1 to 2 people	.45	.00	.07
All involved or all in school	.43	-.03	-.01
Number of Rules			
More than other schools	.53	.56	-.22
Same as other schools	.40	-.14	-.11
Less than other schools	.41	-.13	.03
Number of Job Titles			
More than other schools	.30	-.16	.09
Same as other schools	.36	-.08	-.11
Less than other schools	.65	-.10	-.13

*Numbers indicate average change of all discrepancies treated (range -4 to +4 with a minus sign indicating an increase in the discrepancy between pre- and post-test, and 0 indicating no change at all).

the same number of rules regarding change as other schools, the same number of job titles as other schools, and that the number of people consulted in an adoption decision was "all involved." Thus either the schools indeed have similar organizational structures or the measures used were insensitive to real differences.

For Minicourses, the differences shown in Table N, while not large, are in the expected direction: Fewer people consulted (more centrality), fewer rules (less formality), and more job titles (more complexity) show the largest reductions in discrepancies. For IGE and MACOS, virtually the opposite is true--more rules (more formality) and fewer job titles (less complexity) show the largest reduction in discrepancies, while the centrality measure shows nothing at all.

In addition to these measures of organizational structure, respondents were also asked a direct question about innovative climate in their schools. The relationship between changes in discrepancies and response to this question, "How easy would you say it is to initiate change in your school?" is shown in Table O. Again the differences are not large, but for each innovation, the reduction in discrepancies is greatest for those schools perceiving change as very easy.

Table O: Relationship Between Changes In Discrepancies and Perceived Ease of Change*

	Innovation		
	IGE	MACOS	MINICOURSE
Ease of Change			
Very easy	.54	.08	.15
Fairly easy	.43	-.20	-.07
Fairly difficult	.34	-.07	-.15

*Numbers indicate average change of all discrepancies treated (range -4 to +4 with a minus sign indicating an increase in the discrepancy between pre- and post-test, and 0 indicating no change at all).

DISCUSSION

The failure of this study to strongly substantiate the discrepancy model as a valid basis for market segmentation is due to several factors. We have investigated the following possible sources of difficulty:

1) The experimental design which includes the setting for the study, the sample size, and the treatments.
2) The reliability and validity of the measures used to operationalize the model.
3) The formation of an aggregate discrepancy index.
4) Sub-optimal use of the model.

Experimental Design

In selecting a setting for this study, we considered the trade-offs between two main possibilities -- the laboratory and the field. These two settings represented distinct trade-offs between our ability to control the environment in which the experiment occurred and our ability to generalize the results of the experiment to real-world situations. On the one hand, a laboratory experiment would have permitted very tight control. Distractions would have been minimized, focusing the attention of the subjects on the experimental treatments. Potential causes of attitude change and behavior other than the experimental manipulations could have been eliminated. However, there are serious problems in using the laboratory environment when attempting to generate results that will be used in a real world environment. Often, the laboratory environment is so sterile that trivial manipulations produce observed effects.

Such results uncovered in a laboratory often cannot be seen in a real-world environment containing many conflicting stimuli.

Since our objective was to develop principles that could be used to facilitate the adoption of educational innovations, it was critical that the results of this experiment could be generalized to the actual environment in which educational innovations are disseminated. For this reason, we chose to conduct a field experiement rather than a laboratory experiment. Unfortunately, the gain in generalizability is accompanied by a loss in control. In our study, some of the factors in the field environment that could have affected the results are the following:

1) Administration of the treatments. We could not be assured that the teachers received the treatments. The mail might not have been delivered, or even if it was delivered, the teacher might not have read our brochure. This is evidenced by the fact that 77% of those who did not read the brochure said they never received it.

2) Competing stimuli in the environment when the treatment was administered. Perhaps other brochures were in the mail at the same time, competing for the teachers' attention. The teacher could have encountered other conflicting situations (such as time pressures) and thus been unable to read the brochure completely or take action to order a preview kit.

3) Competing sources of information concerning the educational innovation. As an example, there was widespread publicity of MACOS, emphasizing the controversial nature of the subject matter. The effect of such publicity was evidenced when a

principal clipped one of these adverse articles and sent it to us. Also, there were workshops, special demonstration sites, and direct-mail campaigns conducted by the distributors of MACOS and Minicourses during and prior to the experiment.

We controlled for potential sources of errors in the experiment by using control groups against which differences in the experimental groups could be compared. This enabled us to isolate major longitudinal effects (e.g., a nation-wide recession or a decrease in federal funding for education) from the experimental effect. Unfortunately, a limited sample size (72 schools) prevented us from completely isolating experimental effects, even with the use of control groups. The small sample size increased the possibility that extraneous effects were distributed unequally across experimental and control groups. A larger sample size would have controlled these extraneous factors by anticipating that error due to them would be random and therefore averaged out over a large sample.

In addition to lack of control for random effects, the small sample size created problems related to the segmentation scheme and the confounding effects of multiple treatments. Segments with homogeneous discrepancy patterns were formed using Q-factor analysis. The results of the Q-factor analysis indicated the presence of multiple segments for each innovation. It was not feasible to divide the already small number of schools into a large number of groups (an experimental and a control group in each segment). Thus, it was necessary to reduce the number of segments to two or three per product. Dividing the school into a small number of segments provided a minimally

acceptable number of schools for each segment-treatment combination. However, combining the segments reduced the homogeneity of schools in each of the final segments and decreased the differences between the final segments. The experimental effects were probably reduced as a result.

In addition, the limited sample meant that most schools had to be exposed to treatments relating to more than one innovation. Thus, a school might receive a MACOS treatment oriented toward one group of discrepancies and a Minicourse treatment oriented toward a different group of discrepancies. When a school received multiple treatments, efforts were made to direct the treatments to different individuals in the school; however, the principal received all treatments. Receiving multiple treatments could easily lead to confusion, minimizing the effect of a specific treatment.

The use of strong treatments (e.g., direct personal intervention) is an alternative to controlling random effects with a large sample size. Presumably, the effect of a strong treatment is more easily detected because it produces significantly more change than the random effects present in the environment.

Personal selling efforts and demonstrations directed toward each school are examples of strong treatments that were considered. Commercial companies involved in distributing educational innovations recognize this need for strong promotion and therefore concentrate marketing efforts in personal selling, a costly but effective marketing tool, rather than in advertising, which is less costly but also less effective.

Though strong treatments are desirable, especially with a small sample size, they would have been difficult to control. We could not have assured that only the relevant discrepancies would have been addressed in face-to-face confrontations. Teachers in the experimental groups, through asking questions, could have initiated a discussion of discrepancies that were to be addressed only in the control group. In addition, uniform treatments to different schools could not be controlled in face-to-face encounters. It was also possible that the Far West Laboratory could have been put into a product-advocate position in such face-to-face encounters. In light of the disadvantages of stronger treatments incorporating face-to-face encounters, we decided to use a more controllable but weaker treatment based on direct mail because it allowed:

1) Maintenance of uniform discrepancy treatment across and within segments.
2) Ease of administration to schools where the teacher and principal time available is limited.
3) Use of a strictly informational approach not placing the Far West Laboratory in the role of a product-advocate.

In addition, the direct-mail approach represented a realistic, cost-effective marketing effort that could be applied to large numbers of schools. Thus, the results of a direct-mail campaign could be generalized to actual approaches that might be used in marketing an innovation.

Reliability and Validity of Measures Used in Study

Another reason for the failure of this study to strongly substantiate the discrepancy model could be the lack of validity and/or reliability of the measures used operationalize the model. Though attempts to verify the reliability and validity of the measures were made during the pretest phase, the analysis of the complete study indicates some problems in these areas.

Traditionally, the reliability of a measure has indicated the degree to which the scores on one administration of a questionnaire resemble the scores when the same questionnaire is administered to the same schools at a subsequent time. This test-retest correlation is referred to as temporal stability. If different respondents are used to generate test/retest data, a further aspect of temporal stability becomes important: inter-rater reliability--the degree to which two different observers report the same "event" in the same way. Reliability has also come to mean the degree to which items that comprise the measure are related to each other. Internal consistency, the second element of reliability, refers to a high intercorrelation of items comprising a measure.

Whereas this study did not include a direct measure of the temporal stability of the discrepancy measure, the changing nature of school staff poses a threat to inter-rater reliability. In a number of situations, teachers and principals who answered the pretest questions used to formulate a discrepancy score were not available when the post-treatment questions were administered. The change in respondents affects both the discrepancy measure and the surrogate for the adoption measure (i.e. the change in discrepancies).

An assessment of internal consistency can be made by examining the items used to form a discrepancy score. The items used to form the post-treatment discrepancy measures for a school were the answers of two teachers and the principal to the discrepancy questions. Our data indicate that in a substantial number of cases the three respondents answered the same questions differently. These inconsistencies in perceptions of school discrepancies pose a threat to reliability for both the discrepancy and change in discrepancy measure. There could be several reasons for these internal inconsistencies. First, some of the questions might have had multiple interpretations. Since the teachers and principal answered the questions independently, there was no opportunity to agree on a common interpretation. Also, the principals could have confused the innovations addressed in the multiple questionnaires they received. In addition, there was limited interest or enthusiasm displayed by some schools toward this project in general. Thus, in an effort to complete this task as quickly as possible, school staff could have answered the questions in haste, with limited consideration.

One method for increasing the reliability of a measure is to increase the number of items used to form the measure. This would mean increasing both the number of school staff responding to the questions and the number of questions related to each discrepancy. By increasing the number of items, item-specific errors essentially cancel each other out when the overall measure is formed. However, increasing the number of items would have been difficult in this study because the number of respondents that could be used in a school was limited by the school administration and the respondents would have been reluctant to complete a longer questionnaire than the one employed in the study.

The development of measures that meet the criteria of reliability, in terms of temporal stability and internal consistency, fulfills the basic requirements of operationalizing a scientific investigation. The measures are objective and replicable. However, these measures may not be related to the hypothetical constructs in the model. Basically, the validity of a measure refers to the extent to which variations in the measure relate to variations in the underlying construct. In our study, validity would mean a strong relationship between the discrepancy measure developed from three responses to a question and the true discrepancy existing in the school, and a strong relationship between a school's true adoptive behavior and the tendency to adopt as measured by changes in discrepancies and requests for preview kits. The validity of a measure is a relative, descriptive term. Validity can change from time to time, from sample to sample (see Campbell, 1960, for a complete discussion of the concept of validity).

Perhaps, the most basic form of validity is "face validity." Does the measure seem valid? The face validity of questions used was verified during debriefing sessions after the pretests were administered.

A stronger form of validity is predictive validity. Does the measure predict the behavior of interest? Predictive validity of the discrepancy measure was indicated by analyzing the scores on the pretest for adopters and non-adopters. As one would expect, adopters had significantly lower discrepancy scores than non-adopters (Sikorski and Hutchins, 1974). The most valid measure for the adoption of innovations would be a simple count of the number of schools adopting an innovation. This

highly valid and reliable measure could not be used in this study due to the nature of the adoption process and the time frame of the study. The time it takes a school to adopt an innovation is usually longer than the time frame of this study. Therefore, it was impossible to relate the "tendency to adopt" measures with actual adoption.

Construct validity represents a more stringent validation procedure. Essentially, construct validity is determined by assessing the degree to which the measurement of one concept correlates with other concepts related to the same underlying dimension. Some evidence of the construct validity of discrepancy measures can be seen by examining the relationship between the change in discrepancies in a school and the perception of the ease of making changes in the school. In the study, the greatest reduction in discrepancies should occur in the schools in which changes can be made easily. Table P shows that the ease of change measure in the posttest questionnaire is related to a reduction in discrepancies in the expected way for all innovations.

Table P : Ease of Change in School by Innovation*

	very easy	fairly easy	fairly difficult
IGE	.536	.428	.344
MACOS	.083	-.197	-.067
Minicourse	.148	-.067	-.148

*Numbers indicate average change in discrepancy. More positive number indicates more discrepancy reduction.

Problems of Aggregation

It was not intended that the discrepancy model use an aggregate discrepancy measure for each school, but rather a discrepancy profile. However, in order to compare groups of schools to each other, an aggregate measure was necessary. There is criticism in summing individual discrepancies to form an aggregate discrepancy index for a school. Intuitively, one would think that the individual discrepancies should be weighted (or multiplied) by their importance and the overall index calculated by taking a weighted sum of individual discrepancies. The weights are usually derived using a statistical estimation procedure-multiple regression. However, recent research demonstrates that, in many situations, errors due to poor estimates of the weights are greater than the accuracy improvement gained by differential weights, and thus weighting each item equally (as in the discrepancy model) is better than developing unique weights for each item (see Appendix 6).

Apart from statistical problems of aggregation, there may be substantive reasons for avoiding a single, universal "discrepancy index." Diffusion of innovation is a dynamic process--discrepancies salient at one stage of the process may cease to be salient at another. For example, a brand new, relatively untested curriculum package might suffer initially due to lack of information on the part of potential adopters, lack of ability to produce early results, or skepticism about the acceptability of the developer. However, if the innovation has been in existence for a significant amount of time, discrepancies such as high cost, materials required, or reorganization required are more likely to be critical inhibitors of adoption.

This suggests the possibility of subdividing the discrepancy model into smaller clusters of discrepancies which may be important to potential adopters in different ways at different times. The major difficulty in performing this type of study is time--longitudinal studies require long time frames to generate sufficient data to adequately test hypotheses.

Suboptimal Use of the Discrepancy Model

When a new product is being introduced on the market, a standard procedure is to first address those segments easiest to convince (i.e., those segments most inclined to purchase the product). When this market is saturated, the product is introduced to the more difficult segments.

In our experiment the adopters were eliminated from our sample of schools and the remaining schools were segmented according to discrepancy. A high percentage (18%) of these schools had already considered and rejected the products we introduced. Normally, this group would not be addressed until the rest of the market had been saturated. However, because of our small sample size it was necessary to include these schools in our treatments, thereby adversely affecting our results.

The discrepancy model can be applied to schools that are easier to address than those in our sample. In so doing, schools that have considered and rejected the product would be eliminated from the audience being addressed (as would the adopters). Then, the discrepancy model would be used to determine characteristics (i.e., discrepancies) of the non-adopter schools which approximated the discrepancies of known adopters. Presumably these schools would be most likely to adopt, therefore they would be addressed first. As this segment's market was penetrated, the more difficult (non-adopter) markets would be addressed. As these markets became penetrated, the segment of schools which had

considered and rejected the product could be approached. This is a more feasible and realistic means of approaching the general market using the discrepancy model.

Ideally, the discrepancy model approach to market segmentation should be initiated before the product exists in its finished form. As will be elaborated in a later section of this paper, a segmentation strategy should be developed in coordination with the marketing tools available to execute the strategy successfully. The major types of tools relevant to segmentation are: product differentiation, differential pricing, alternative distribution systems, and promotion (communication).

The field experiment described in this paper was limited by the fact that the innovations used were fully developed prior to the study. Pricing and distribution procedures had been established. This effectively meant that promotion was the only marketing tool available to us for treating the discrepancies.

Though communication of information may be successful in reducing some discrepancies, particularly those associated with the initial phases of the adoption process (e.g., knowledge of the product, priority, theoretical basis), other discrepancies are unlikely to be reduced in this way. Discrepancies such as subject matter, materials, and physical space are best addressed through product differentiation. Reduction of such discrepancies as cost, purchase accessibility, and divisibility require differential pricing decisions. Finally, reduction of discrepancies involving reorganization or training may require the development of multiple delivery systems.

If the strategies to market an innovation are developed in conjunction with the innovation itself, it would seem that the discrepancy model or

other segmenting strategies offer effective methods of assessing the needs of various market segments and suggest ways of using available marketing tools to meet these needs. Part III of this report elaborates on this notion.

Conclusions

If one examines potential factors that could have led to the minimal results obtained, it appears that the combination of small sample size and relatively weak treatments had the most dramatic effect. While there is some indication that the reliability of the discrepancy measures as used in this study could have been improved, the effects of limited reliability were not as dramatic as those of the small sample size. There is no indication that the discrepancy model or the questions used to measure the discrepancies are invalid. However, the model could be used under more favorable conditions than those of this experiment.

Replication Study

A doctoral candidate at Northwestern University conducted a replication of the experiment for two of the innovations: IGE and Minicourses. This study involved teachers from 97 schools throughout northern and central Illinois (Kasulis, 1975).

The replication study differed from the original study in three ways: 1) the pretest was conducted only two months before the treatments were administered (as opposed to a year in the original study); 2) there were no school principals participating; and 3) the treatments were administered six weeks after those of the original study.

Results of the replication study were similar to those of the original study. Coupon response was somewhat higher, with seven requests for Minicourse preview kits and twenty-eight requests for additional information about IGE. However, neither dependent variable -- coupon return or average discrepancy reduction -- showed significant differences due to experimental treatments. Nor did the organizational variables (ease of change, complexity, centrality, formality) account for any significant differences in treatment effects.

The lack of significant findings in the replication study increases the probability that problems other than small sample size are involved. For example, there is evidence that inter-rater reliability may be a major weakness of the discrepancy model in its present form. In instances where more than one teacher responded to a discrepancy pre-measure (which was never the case in the original study), there was considerable disagreement about the magnitude of the discrepancy. This is consistent with post-treatment findings of our own study, thereby casting further doubt on the temporal stability of the discrepancy measures.

Unfortunately, the replication study suffers the same major weaknesses as the initial study: small sample size (in terms of number of schools) and weak treatments. This precludes using the replication study to draw definitive conclusions about the validity of the discrepancy model in its present form.

Follow-up Study

An informal follow-up study of the original sample of schools was conducted in November, 1975. School principals were telephoned to determine whether their schools had adopted the product(s) since the administration of our post-treatment questionnaires in March. This was also an opportunity to gather subjective data regarding the effectiveness of our treatments, the schools' receptiveness to innovation, reasons the schools had not adopted the product(s), and suggestions for future dissemination efforts. It was hoped that this information would shed further light on our previous findings.

Our segmentation results were unaffected by the new data, since no additional schools had adopted the products. This was not too surprising, given that the short time span between the original and follow-up studies occured over the summer when schools are not in session.

However, several interesting remarks and suggestions were made by the participating principals. Those who like the direct-mail approach to dissemination felt that the brochures were successful at generating interest in the product(s). However others, who felt they were swamped with advertisements and newsletters, preferred to actually experience the product. It was intended that the product preview kits be a means by which recipients could familiarize themselves with the actual product(s); however, those who were not receptive to the direct-mailing were not made aware of this opportunity. Several of those who did receive the preview kits commented that the presentation of materials therein was outstanding.

When asked for their dissemination suggestions, most principals stressed the importance of staff involvement (i.e., allowing the staff to interact with the product to some extent). This ranged from giving the teachers hands-on time with the product prior to adoption to encouraging the staff to get involved in product development. It was felt that a more vested interest in the product would encourage participation in product adoption. When asked what specific methods they would employ to acquaint teachers with new products and ideas, respondents named standard methods such as workshops, conventions, and sales demonstrations. They did point out that staff time and expense should be taken into account when planning such activities.

The lack of product adoption does not imply a lack of interest in adopting. Most schools seemed extremely open to innovation but for a variety of reasons could not consider adopting the products we presented. The chief reason cited was the lack of school funds to meet the costs involved in purchasing and implementing the product(s). Several principals were approached by teachers wanting to adopt the products, but they had to turn the requests down for financial reasons. In fact, one school adopted one of the products but had to drop it when the funds ran out to support its continuance. As one principal put it, "We love innovation, but can't afford it." The present economic crunch was cited often, with expectations that it would continue or worsen. Generally, budgets just manage to cover schools' basic needs, with any extra money going to the rising cost of labor rather than materials. With the current grim unemployment situation, most schools sacrifice their materials in order to maintain tenured personnel.

The three innovations we presented were viewed as costly (with a minimum implementation cost of $2000-$4000). One principal said that his school would adopt a product that costs between $500-$1000 if it could make an impact on the school as a whole. Since funds are not, in most cases, realistically allocated for individual schools to purchase major products, it was suggested that marketing efforts be directed toward the district level. However, there are problems with this approach, too. Even though a district may be able to purchase an innovation, there is no guarantee that the schools within the district will have direct access to it. For example, one Chicago school has access to MACOS through the district office. However, upon requesting it, they were put on a long waiting list, since the district has only two units available to its many schools.

There were a variety of other reasons schools gave for not adopting the innovations, many of which stem from a lack of adequate funds. They include: the product is not a present priority (priorities are based on the school's financial situation); the product is not on the state adoption list (which again is tied to funds, as the state furnishes money only for adoptions from the state lists); a lack of adequate personnel; similiar products already exist in the school; school board or community approval is necessary before considering adoption; the product disrupts normal classroom routine; the school does not have adequate space and/or materials necessary to implement the product; parents confronted the school with bad publicity about the product. All of these reasons were covered by the discrepancy model, suggesting again that the instrumentation and/or treatments rather than the model itself must explain the weak effects of the experiment.

The foregoing feedback emphasizes the necessity of developing a marketing approach to product development and dissemination. Product development should occur only after a thorough analysis of the educational market in question. Products must be realistic not only in terms of educational needs, but more importantly in terms of the resources and financial capabilities of schools.

PART III: USING MARKET SEGMENTATION FOR EDUCATIONAL MARKETS

In earlier sections, we have described the concept of market segmentation and reported results of an experiment using a discrepancy scheme for segmenting three educational markets. In this section, we will discuss more fully the general issues of when to use a segmentation strategy, how to implement it, and what variables can be used as a basis for segmentation. We will conclude by describing some actual applications of the concept of market segmentation to the dissemination of educational innovations.

WHEN TO SEGMENT

Market segmentation is a particular marketing strategy--it is not a research tool. Thus, the decision about when to segment is a strategic one, and the choice of a segmentation strategy should be based on an analysis of its cost-effectiveness relative to other strategies that may be chosen.

Initially, it seems logical that targeting marketing efforts to sub-groups of the total potential market must be more effective than not doing so. However, this type of reasoning violates the notion of cost-effectiveness by focusing only on the increased "sales" or impact a segmentation strategy may generate while failing to consider the necessary costs. A segmentation strategy should be used if and only if, the costs can be justified--either because they are exceeded by revenues or in light of the inherent social value of the outcome.

Analysis of the cost-effectiveness of a segmentation strategy begins with a consideration of the alternatives. There are three major types of strategies: undifferentiated, concentrated, and differentiated

(Kotler 1972); the latter two are different kinds of segmentation strategies. An undifferentiated strategy is one in which the entire market is aggregated and approached as a homogeneous whole. A concentrated strategy involves dividing the market into segments, choosing a single segment on which to focus marketing efforts, and ignoring the other segments completely. A differentiated strategy also involves segmenting the market but differs from a concentrated strategy in that two or more segments are selected for different types or degrees of marketing effort.

Kotler (1972) outlines general characteristics of marketing situations which are important determinants of what type of strategy to select. An undifferentiated strategy will be the best choice if the market is, in fact, homogeneous and intervention is likely to be equally effective with all members of the market. Similarly, if the marketer lacks the resources, tools, time, or imagination to differentiate his product or appeal, he should choose an undifferentiated strategy. An undifferentiated strategy may be best if the product is being newly introduced and it is not yet clear how its acceptance will differ among different groups.

When the marketer believes his target population has important subdivisions with different needs and/or different degrees of accessibility, he should consider a segmentation strategy. If he has minimal resources, a strategy of concentration may have the best results--focusing efforts on a single segment rather than spreading inadequate resources across a broad market. This would be a particularly good choice if members of a single segment could be expected through leadership or by virtue of their particular roles or locations to promote further dissemination. This kind

of "ripple effect" is frequently sought by educational change agents.

There may be other forces in the environment which would influence the success of one or the other types of strategies. For example, if an established "competitor " is concentrating on a particular segment, the marketer may wish to focus on different segments.

When it has been decided that a segmentation strategy appears desirable, there are specific criteria which can be applied to determine whether either of the two segmentation strategies will be cost-effective:

1) Diversity	Two or more subgroups (segments) within the total market differ significantly with respect to their need or use of the innovation, or their likely response to it, or with respect to how it is or would be purchased or used.
2) Substantiality	At least one of the segments is large enough or important enough to warrant identification and specialized treatment.
3) Measurability	One or more variables exist that can be used by the marketer to identify those segments to which he wishes to target his efforts.
4) Accessibility	The marketer has tools at his disposal to effectively focus efforts on target segments.

It is important to recognize that all four of these criteria must be satisfied if a differentiated or concentrated market segmentation strategy is to be cost-effective. If all potential users have essentially the same needs for a product, view the product's attributes in the same way, and have similar buying or consumption habits (i.e.,"diversity" is not satisfied), there is no basis whatever for a market segmentation strategy, and searching for ways to differentiate potential users will be a waste of resources. Similarly, if two or more market segments with different needs exist and can be identified, target segments must represent a large enough "sales potential" (i.e., satisfy "substantiality") to justify a specialized strategy. If not, the cost of segmentation may be inordinately high, and a successful segmentation scheme will not be cost-effective. If different segments exist but there is no way to precisely distinguish each of them from the general population (i.e., "measurability" is not satisfied), the knowledge that they exist is not useful. And if large segments exist and are identified but cannot be reached through differential marketing efforts (i.e., "accessibility" is not satisfied), a segmentation strategy cannot be implemented.

The most frequently overlooked of these criteria is accessibility. The marketing strategist has certain tools at his disposal with which to market his product. These include product differentiation, pricing, use of alternative channels of distribution, and various forms of promotion. In any given marketing situation, a set of constraints (including legal, political, social, and economic factors) will govern the extent to which each of these tools can be employed. Any segmentation scheme must be actionable with respect to the tools available and the set of constraints applicable to the marketer's situation. Too often marketing researchers develop segmentation schemes which fail when

managers are unable to direct efforts to identified target markets (Baumwoll, 1974; Achenbaum, 1974; Guiltinon and Sawyer, 1974).

Academic researchers have often dealt with the issue of accessibility by assuming that the perfect segmentation scheme will result in a high degree of customer "self-selection," i.e., that each segment will selectively receive those efforts targeted specifically to them (be they different versions of the product, different price levels, different distribution outlets, or different promotional messages). However, Achenbaum (1974) makes the point that markets do not segment themselves. Some marketer must segment them. If one is clever enough in matching the offering with the needs of the target segment(s), it may be possible to gain an increased and appropriate response; but it is more likely that a campaign based on user self-selection will represent some wasted effort or spillover and many "misses." If the marketer uses time and effort to collect data on how segments differ but does not learn how to reach or communicate selectively with them, the effort is wasted.

Thus, in considering when or whether to use a strategy of market segmentation, the dissemination specialist must evaluate the situation according to whether the target market is heterogeneous in ways relevant to the innovation, whether even if one does find subgroups, it will be possible to treat them differently; whether resources could be better used appealing to the whole, or one large segment, or several smaller segments; whether the activities may be affected by what else is going on in the environment, and whether the stage in the innovation's life cycle calls for differentiated or undifferentiated treatment of audiences. If one weighs these factors and considers that a segmentation

strategy may be warranted, the next step is to consider whether a segmentation variable is available that is measurable and meaningfully subdivides the market into substantially-sized groups which can be selectively reached and served.

HOW TO SEGMENT

The research process for implementing a segmentation strategy involves fairly standard and well-known analytic procedures; it is not our intent to present guidelines for them. However, the logic of market segmentation requires that certain steps be taken, and it is these which will be reviewed here.

Basically, the strategy involves seven steps: 1) defining the market; 2) determining how a segmentation strategy may help in the achievement of overall dissemination goals; 3) selecting the basis for segmenting; 4) measuring the market on the variable selected and on other variables necessary for selective reach; 5) analyzing data to yield subgroups; 6) designing products and/or marketing efforts to achieve marketing goals for each segment; and 7) implementing marketing efforts.

These factors overlap and often will not occur in that order; but the dissemination strategist should devote attention to each one and at least consider the entire set before implementing any.

Each of these steps is described here.

Step 1: Defining the Market

The marketer needs more than a general notion of the target population. It is necessary to consider exactly who will be included and how the target group can be reached.

Kotler (1975) describes "market analysis" as the task of developing first-hand knowledge of the market. It starts with defining

the market's boundaries. A market for something is made up of all those who might have sufficient interest and the right resources to exchange for it. In educational dissemination, this is usually school personnel or organizations with particular needs or problems and a basic capacity to respond to the marketer's efforts. It may be "all secondary schools in Michigan," or "school superintendents in the U.S. with special education classrooms."

If we consider the importance of the description and selection of markets to all other diffusion decisions, it is notable that in education these are usually only very generally considered. Cooke (1970) points out that in the case of "fundamental innovational breakthroughs," perhaps the product defines the market, and market analysis is not necessary, but we are not usually dealing with such cases. Cooke also states that ". . . market definition and analysis are . . . in fact the effort which defines what is going on as a marketing process. Absent this step, what is going on is only a form of gambling."

There is no particular rule or procedure for defining the market. This is a conceptual task, a prerequisite to measuring it on the variables of interest. The marketer considers who might need or want what he has to offer, and who could conceivably become involved with him in an exchange relationship.

Then, the dissemination strategist must consider carefully whether he is dealing with individuals or with organizations, since marketing efforts aimed at the individual will be useless if there must be an organizational response which single individuals cannot set in motion. Marketing efforts will differ when the organization is the unit of change. As an example, an individual teacher who is sold on IGE may try

to influence decision-makers in a district to adopt it, but marketing efforts aimed at those decision-makers in the first place would have direct and more certain impact. If individual characteristics are used to segment markets where organizations must be the unit of change, the information provided is likely to be of little use (Hage and Aiken, 1970; Baldridge, 1974).

Step 2: Determining How a Segmentation Strategy May Help in the Achievement of Overall Goals

There will be no point in planning a segmentation strategy unless the dissemination specialist has some reason to believe that using selective appeals or approaching just part of the market will be more cost-effective in achieving overall goals. A previous section (see page 57) discussed how to evaluate the potential cost-effectiveness of a segmentation strategy. The concern in this section is that the dissemination strategist evaluate it in light of overall goals.

Since educational change goals are rarely limited to monetary profit, the educational dissemination specialist has to deal with constraints which are usually not a problem in commercial settings. For example, a market segmentation strategy is frequently used because it enables the strategist to exclude from consideration those segments which are likely to be resistant and thus unprofitable. However, educational change goals generally include all educational systems--at least ultimately--and often the most resistant subgroups are those most in need of the "treatment."

The educational dissemination specialist must also consider whether use of segmentation information to design different products or appeals will not involve altering the innovation in a way that violates the change goals. For example, one may find that the best approach to

"sell" the most resistant segments is to offer them something free or at a very low cost while making up consequent losses by overcharging districts in less resistant segments for the same or a slicker version. Though this tactic may be feasible in many commercial settings, it may not be acceptable for achieving educational change goals.

A third constraint for most educational change strategists is the necessity for avoiding product advocacy. Generally, the change goals are expressed in terms of a problem for which a particular innovation may be useful but not necessary. The goal is to deal with the problem using the best and most cost-effective technology available. If a segmentation strategy is devised to promote particular products, the dissemination specialist must consider whether, in fact, this is consistent with the goals.

Step 3: Selecting the Basis for Segmenting

As mentioned earlier, it is crucial to determine who is the target--the unit of change. It is equally crucial to determine the variable(s) which can be used to segment. The usefulness of information gained from subdividing a market depends on the variable(s) chosen as the basis for segmentation.

The initial inventory of possible bases includes all variables which influence the target's response to the innovation and/or the change efforts in question. There are certain criteria which can be used to evaluate whether a particular variable will be useful for segmenting. They have been described earlier (see page 59) and include measurability (are there valid, reliable measures of the variable?); substantiality (will one or more of the sub-groups homogeneous on that variable be large enough or important enough to warrant specialized treatment?); diversity (is the market in fact heterogeneous on that

variable?); and accessibility (can subgroups be selectively reached by marketing efforts?).

Thus, the dissemination strategist needs to find a measurable variable which is meaningfully related to the dependent variable (the ultimate dissemination goal), or which is related to responsiveness to possible marketing efforts, and on which members of the population differ. This is a fairly large assignment. The strategist may be aware of many known variables that would relate meaningfully to a specified dependent variable but which are difficult or expensive to measure. For example, the strategist concerned with the dissemination of Minicourses may feel that "district decision-making structure" relates importantly to the adoption/implementation process for this product, but this variable is difficult and expensive to assess.

On the other hand, a variable such as district size may be fairly easily measured, and perhaps related to the adoption/implementation process, but it may not have useful marketing implications--if, for example, the marketer cannot conceive or afford different appeals or policy for different-sized districts. Or a variable such as district location may be easily measured and suggestive of selective appeals or policy yet not strongly related to the adoption/implementation process for Minicourses--that is, an appeal targeted specifically to a given locale may not affect the dependent variable any more than would a general appeal.

A later section of this report lists candidate variables for segmenting educational markets (page 75). Though such a list can be used as a guideline, each situation has unique problems and opportunities, and the dissemination strategist needs to evaluate variables in the context of their usefulness for each situation.

Step 4: Measuring the Market

The dissemination strategist must assess the specific needs of the target population--or a sample which is representative of that population. There is a need to develop or find appropriate measures for the segmentation variable. In addition, one must collect data to characterize the segments yielded. Generally, this should include data for facilitating selective reach and data relevant to computing the probabilities of different degrees of success with each segment, as well as any other kind of information the dissemination strategist may take the opportunity to gather.

The first kind of data mentioned, data for facilitating selective reach, includes information which allows the dissemination strategist to communicate with or interact with one segment exclusively. This could include information about the media used by members of the segment, their preferences (e.g., product-type preferences), their geographic or other location, their network of associates, the kinds of arguments likely to persuade them, and so forth. There are varying degrees of selective reach. At one extreme, the dissemination strategist may manage to communicate with all members of a segment and with no one outside of the segment; from there, the extent of selective reach decreases as fewer segment members and/or more members of other segments are reached.

The information needed for selective reach depends on the extent to which the dissemination strategist wants to be able to reach one segment exclusively. If 100% coverage is sought, with no spillover to other segments, it is necessary to determine the exact whereabouts or identity of each segment member. If spillover is acceptable, one needs to learn information about habits or characteristics of the target segment, but these need not necessarily be different from those for non-target segments.

If it is desirable to reach some but not necessarily all members of a segment, one looks for general characteristics of the segment or majority traits.

A related concern is whether to depend on target self-selection or on "controlled coverage" to reach segment members. With the first, one designs messages, products, etc., to meet their needs or preferences and assumes that if these are made generally accessible, the target segment will be most attracted. The second involves taking more active steps to insure that the target segment responds, making the product or communication available only to the target segment. The data needed for the first strategy would more often be of a "psychographic" nature--describing tastes, preferences, needs, and so forth; data needed for the second would more often be demographic/ geographic, to pidgeonhole target members closely (see page 75 for a discussion of these two categories of variables).

The second kind of data that might be necessary for an effective application of a segmentation strategy is that which specifies probabilities of success with each segment. This can range from respondents' answers to a direct question about whether they expect to respond, to scores on projective or surrogate measures, where the researcher uses more unobtrusive methods to estimate probable response. The most relevant data would concern needs and/or preferences coupled with resources (as a direct measure) and past history of usage, relevant perceptions, and demographic indicators (as more indirect measures).

To insure collection of sufficient data for selective reach and to estimate likelihood of success with a segmentation strategy, the dissemination strategist needs to consider carefully the goals for

each segment and, at least generally, what methods are available for selective reach (e.g., media presentations, training programs, linkage arrangements, meetings, direct mail, etc.).

Step 5: Analyzing Data to Yield Subgroups

An important step is to choose and implement an analytic technique which classifies respondents into internally homogeneous but externally heterogeneous segments.

In descriptions of segmentation research, two general kinds of techniques are discussed. One includes procedures such as regression analysis which specify effects of candidate independent variables on the dependent variables of interest; in effect, they search for predictors of the dependent or consumption variable. The second includes clustering techniques such as Q-type factor analysis which group subjects according to specified variables.

Much of what is described in the marketing literature as segmentation research involves the first kind of procedure, the aim of which is not simply to subdivide a population, but to determine variables which explain differences on the dependent variable. This is appropriate in exploratory studies, to discover which variables are related to the dependent variable and therefore would be useful for segmenting. This kind of research provides empirical evidence useful for selecting the variables to serve as the bases for segmentation.

However, the type of segmentation research reported in Part II of this paper involves a clustering technique, which starts with the knowledge or assumption that a particular variable is in fact related to differences on the dependent variable and then "carves out" segments from a population assumed to be heterogeneous. This is what Frank et al. (1972) call the "decision-oriented," as contrasted to the "behaviorally-oriented," school of segmentation research.

Since it is true that in selecting a variable for segmenting, the dissemination strategist believes that it is related to the dependent variable, the relationship must at some time have been established. Preferably it will have been established through empirical research. Thus, at some point behaviorally-oriented research for finding independent variables which relate to the dependent variable is relevant to implementing a segmentation strategy. However, the decision-oriented research goes on as a part of the segmentation strategy, being one of the steps necessary to implement it. Appropriate analytic techniques are those requiring, as input, scores on the independent variable, which are then used to cluster respondents. Theoretically, this type of research need not involve any measure on the dependent variable. In fact, the performance which is specified by the dependent variable usually doesn't occur until after decision-oriented segmentation research has been carried out, to measure potential users on one or more independent variables and then to cluster them according to their scores. The function of behaviorally-oriented research is in giving the dissemination strategist an idea of what variables should be chosen for implementing decision-oriented research. It may or may not be necessary to conduct that research as part of the segmentation strategy. One is likely to use research results obtained elsewhere to help in the selection of independent variables.

There are a number of techniques for decision-oriented segmentation research. A Q-type factor analysis was used for the study described in Part II of this report. Other clustering techniques include non-metric multidimensional scaling and hierarchical clustering. However, as Baumwoll (1974) notes, there is no single alogrithm or method of analysis which can be uniformly applied. Each situation will call for an analytic solution

which suits the kind of data available (nominal, ordinal, interval, or ratio); the particular segmentation problem (what trade-off between sub-group homogeneity and subgroup size is best); the resources available, and so forth.

Step 6: Designing Products and/or Marketing Efforts to Achieve Marketing Goals for Each Segment

As noted earlier, product, price, delivery, and promotional variations can be used for differential treatment of segments.

The dissemination strategist will generally have constraints governing which of these can be used. Tailoring the innovation to the user's needs requires that product-development or revision go on after segments have been carved out and studied, or that a set of products be available from which the dissemination strategist can choose one which is appropriate. If the dissemination strategist's goal is to achieve widespread use of a specific innovation, a common situation in education, then opportunities to alter it may be severely constrained. On the other hand, the innovation may allow a degree of flexibility in the form of additions, deletions, or modifications which will result in different forms of the innovation for different segments. For example, a new curriculum package might make parallel use of both written and audio-visual materials in such a way that one or the other can be de-emphasized or eliminated altogether, depending on the needs and resources of individual adopting districts.

Price variations may be brought about in several ways. Most simply, the dissemination strategist may offer his product or service at a price matching the target segment's resources; this may require seeking and finding a source of subsidy. Differential pricing may be achieved

in conjunction with offering different versions of the product as is frequently done with commercial products such as automobiles. To the extent that target segments differ greatly in resource availability, setting higher gross margins for the most expensive versions of the product may be an effective way to subsidize less expensive versions for poorer school districts.

Indirect pricing variations can be achieved through the use of rental or leasing agreements, or by offering liberal credit terms to those districts unable to raise large short-term appropriations.

The delivery or distribution system may be set up to increase response by particular segments. The dissemination strategist may choose to use particular channels for information or for product availability. One may vary the extent to which user-initiative is necessary to activate the delivery system. This is commonly done by varying the "length" of distribution channels. Short channels, such as a direct system from NIE to all school districts, are usually employed in situations where user-initiative is expected to be high. On the other hand, to the extent that incentive to activate the delivery system is low or to the extent that the product or service needs demonstration or extensive inservice training, longer distribution channels are often necessary. These might involve regional dissemination centers, state education departments, information or diffusion networks, or district change agents as dissemination intermediaries.

Finally, the dissemination strategist may use different promotional appeals or methods. Promotion involves all marketing tools whose major objective is persuasive communication. There are four major types of promotion which can be used singly or in combination: advertising, publicity, personal contact, and incentives.

Advertising involves nonpersonal presentation of persuasive messages. The dissemination strategist might advertise a product or service through educational journals or by use of direct mail.

Publicity involves "free" advertising of products or services. Educational marketers may profit from endorsements of their products by leading state and local educators. Such endorsements might lead to adoptions directly or through acceptance on state or city adoption lists.

Most educational marketing involves at least some personal contact. Such contact is generally more expensive, but is more efficient in terms of selective reach, and generally more effective in securing adoptions. This is particularly true if the product or service is expensive or complex, or requires demonstration or inservice training. Personal contact is also more effective than advertising in selling to complex organizations, in which several persons must approve any adoption or purchase.

Incentives are items of financial value which are often used in conjunction with other forms of promotion to encourage purchase. Educational markets are particularly well-suited to the use of incentives due to their inherent inertia and conservatism. Trial usage, free samples, demonstrations and free or low cost pre/inservice training are a few incentives marketers might use to disseminate educational products and services.

Step 7: Implementing Strategies

Effective implementation of the marketing strategies discussed above requires three major thrusts: organization, planning, and control (Kotler, 1975).

While it is not the purpose of this paper to discuss alternative types of educational marketing organizations, one important point should be made. All educational dissemination efforts involve marketing, whether it is

labelled as such or not. The organization must reflect the fact that educational products and services must be marketed regardless of the economic, social, or political constraints faced by the disseminating agency. Too often disseminating agencies have adopted the view that their task should consist only of making products and services available with no overt efforts to assess the needs of potential customers or to fulfill those needs.

A marketing orientation leads directly to planning and control functions necessary to the successful implementation of marketing strategies. The most important aspect of planning is the assessment of customer needs at the earliest possible point in the development of products and services. Inputs from this type of needs assessment can be used by both commercial and non-profit disseminating agencies to perform cost-benefit analyses to determine what products and services should be developed. The results of careful planning will be maximization of profit for the commercial marketer and maximization of social welfare for the non-profit marketer.

Marketing control is a necessary adjunct to successful marketing planning. The educational marketer must establish a set of goals and guidelines to insure that marketing strategies are implemented in accordance with specified plans. Failure to reach goals should automatically trigger corrective action or at least result in a determination of why goals have not been achieved.

BASES FOR SEGMENTING EDUCATIONAL MARKETS

The set of possible segmentation variables is virtually limitless. The dissemination strategist may pick from the array of variables already known or suspected to relate to adoption/implementation behavior, or he may develop new ones which appear to meet the requirements of his situation.

An earlier section of this report presents four criteria for determining whether a strategy of market segmentation is appropriate. The criteria--diversity, substantiality, measurability, and accessibility--are also those which are used to judge which, if any, of the vast array of potential segmenting variables can be used to advantage. Thus, a segmenting variable is useful if it divides members of the target population into two or more subgroups with meaningful but different relationships to the consumption variable of interest (diversity) such that at least one subgroup is important or large enough to warrant specialized treatment (substantiality), and the variable is measurable (measurability) and resulting subgroups are accessible to communication or marketing efforts (accessibility).

As noted earlier, the majority of research on segmentation has focused on consumer goods markets. The segmenting variables have traditionally been characteristics of individual consumers, or in some cases, families (Frank, 1968). However, most educational innovation depends on adoption by an organization or by an individual in an organizational setting, and thus, it is important to consider characteristics of organizations as well.

Frank et al (1972) present a two-stage procedure for segmenting which recognizes the importance of both the organization and the individual. The

first stage is to segment at the organizational level, using variables which are characteristics of the organization itself, rather than characteristics of the individuals comprising the organization. Once the market has been segmented at the organizational level, the resulting target segments can be further subdivided according to characteristics of key decision makers within the organization. For example, within a segment with homogeneous organizational characteristics, different ages, educational backgrounds, and personalities of key decision makers may suggest different diffusion tactics.

This two stage segmentation procedure has advantages which are of particular importance to educational marketers. First, as discussed earlier, the educational marketer frequently faces legal, political, and social constraints which may preclude use of the most profitable marketing strategy. For example, the least substantial, most highly resistant segment for a particular innovation may be comprised of those schools in most need of the innovation. While economic considerations might suggest ignoring this segment (at least initially,), other forces may prevent such an exclusion. With a two-stage segmentation scheme, the educational marketer may include these potentially resistant segments at the first stage but segment at the second stage, within organizations, to target his appeals to the most responsive individuals. While social, legal, or political constraints may force the educational marketer to focus on unprofitable segments, or reduce efforts to profitable segments, these constraints will not affect the second stage segmentation strategy--that which subdivides organizational segments according to characteristics of individual decision makers.

A second advantage of the two-stage procedure is that it forces the strategist to distinguish between the organization and the individual

decision makers which comprise it and to determine the relative importance of each stage. The more autonomous each individual member of the decision making unit, the more important is the second stage of the segmentation procedure. For example, if the individual school is the organizational unit with the principal making the decisions for that unit, principal characteristics are likely to be very important. However, if the district or county is the relevant unit, characteristics of individual school board members will be less important, as many are involved in the decision making process.

A third advantage of a two-stage scheme is that it allows the strategist to work within organizational segments to deal with a variety of products. Thus, while the relevant organizational segmentation variables may be the same for two or more types of innovative curriculum packages, the individuals involved in the adoption/implementation procedure may be completely different, suggesting the possibility of using different individual segmenting variables.

There are several classification schemes for innovations which might be used to decide the relative importance of the two stages of segmentation. One is a typology developed by Chin (1963), who proposed that an innovation requires one or more of the following changes (listed in order of ascending difficulty to achieve): substitution (e.g., one book for another), alteration (e.g., a longer school day), perturbation (e.g., teaching in a mobile classroom), restructuring (e.g., team teaching), or value orientation (e.g., replacing part of a teacher's duties with a computer). The closer the type of innovation is to the end of this list, the more important the first stage of the segmentation procedure. On the other hand, an innovation classified as a simple substitution may suggest foregoing the organizational segmentation stage altogether.

For both levels of segmentation--organizational and individual--two further characterizations of segmenting variable are useful: general

vs. situation specific; and objective vs. inferred. General variables are those enduring characteristics affecting demand for products and services which do not depend on the particular dissemination task at hand. For organizations, these might include size and location; for individual decision makers, age and sex. Situation specific variables are those relating to the interactions between the dissemination strategist or his product and the potential adopters. At the organizational level, these could include things like degree of usage; at the individual level, attitudes toward the developer/disseminator. The distinction is useful since data on general variables has wider applicability and may therefore be more cost-effective to gather.

For each category of variables, some are directly measureable, such as occupation, income, district size, school location, etc. These are labelled objective. Other variables, such as purchase decision procedures or personality characteristics, are measurable only subjectively or indirectly, and therefore must be inferred. As will be seen later, the distinction is useful from an efficiency standpoint: objective measures may be cheaper to use (i.e.,easier to collect or obtain the necessary data) and more reliable than inferred measures.

Table Q summarizes the two-stage conceptual scheme for segmenting educational markets. Implied is an initial division of the relevant educational organizations (e.g.,schools, school districts, state education departments) into segments using characteristics of the organizations themselves (e.g.,size, wealth, location), followed by a subdivision of target segments on the basis of characteristics of individuals within those segments (e.g.,role, age, attitude). At each stage, segmenting variables may be general or situation specific. The measurement of each variable may be objective or inferred.

TABLE Q:

CLASSIFICATION SCHEME OF BASES FOR SEGMENTING EDUCATIONAL MARKETS

	Organizational Level		Individual Level	
	General	Situation Specific	General	Situation Specific
OBJECTIVE	Demographics Environmental Heterogeneity Location Size Wealth Structure Number of Inservice Training Centers Centrality Complexity Formality Staff Composition Technology Equipment Space Environmental Linkage	Product Usage Prior Experience with Seller Source Loyalty Buying Situation	Demographics Age Education Income Occupation Position/ Role Professional Affiliations Sex Skills Social Class Years at Job	Source Loyalty Prior Experience with Seller Stage in Adoption Process
INFERRED	Buying Task Purchasing Goals Purchasing Rules Autonomy Psychographics Ability to Deal with Conflict Character of Leadership Need for Stability Openness of School Climate	Source Attitudes Benefits Sought	Psychographics Achievement Orientations Aggressiveness Authoritarianism Career Satisfaction Cognitive Style Cosmopolitanism Dogmatism Information Seeking Innovativeness Intelligence Knowledge Liberalism Opinion Leadership Persuasibility Self-confidence Self-esteem Tolerance for Ambiguity Tolerance for Risk	Source Attitudes Benefits Sought

The variables included in Table Q have been drawn from a large number of sources, including industrial marketing, consumer goods marketing, organizational behavior, sociology, social psychology, and diffusion of innovation research in education and private and public sector marketing. It is not meant to be exhaustive--in fact, an exhaustive list would not be possible. Instead, the list contains some variables which have been used in the past or suggested by experts for future use in any segmentation task involving organizations.

It is highly unlikely that all or even many of the variables listed in Table Q will be of use to the educational marketer facing a particular dissemination task. Table R contains a subset of those variables which are very likely to be useful as segmenting variables in educational markets. The following sections discuss these variables in more detail.

Organizational-Level Characteristics--General/Objective

The most commonly used bases for segmenting organizations are demographics--statistical properties with quantitative measures. The major advantage of demographic segmentation is ease of measurement. In many instances, secondary sources exist which provide all the necessary information, eliminating costly survey procedures. In addition, demographics generally rate high on the accessibility criterion. A disadvantage of demographic variables is their frequent failure to define strongly diverse segments. The industrial marketing literature is rich in segmentation studies using demographic variables (Frank, Massy, Wind, 1972). However, a review of these studies indicates that geographic location and end use of product are the only variables which have repeatedly produced successful results (Cardozo, 1968). Since end use of product is relatively homogeneous across educational markets, it is not as applicable to educational dissemination tasks.

TABLE R:

CLASSIFICATION SCHEME OF BASES FOR SEGMENTING EDUCATIONAL MARKETS
--MOST PROMISING VARIABLES--

	Organizational Level		Decision Maker Level	
	General	Situation Specific	General	Situation Specific
OBJECTIVE	Demographics Environmental Heterogeneity Location Size Wealth Structure Number of Inservice Training Centers Complexity Staff Composition	Buying Situation	Demographics Occupational Position/ Role Skills Years at Job	Stage in Adoption Process
INFERRED	Buying Task Purchasing Goals Psychographics Openness of School Climate	Benefits Sought	Psychographics Authoritarianism Career Satisfaction Cosmopolitanism Information Seeking Behavior Innovativeness	Benefits Sought

In educational R&D, there has been considerable interest in demographic characteristics as they relate to educational change and the adoption and use of innovations. In fact, most of the research in diffusion of educational innovations has focused on demographic variables. As with industrial marketing studies, geographic location may be a useful segmenting variable for educational markets, particularly if this is operationalized in terms of opportunity for interaction with other organizations (Havelock, 1969; Fullan and Eastabrook, 1970). Whether the schools or school districts under consideration are urban or rural and what part of the country they are in could also be important determinants of innovative behavior.

Related to location is wealth, most commonly measured as per pupil expenditure, overall school budgets, or median income of district families. As with location, wealth is a particularly easy variable to measure, and has been shown to have some relationship to innovative behavior (Baldridge, 1974; Miller, 1974; Watson, 1974).

A third demographic variable which shows promise as a segmenting variable is district size (Baldridge, 1974; Miller, 1974; Watson, 1974). This information is generally available from state education departments. Somewhat more difficult to measure, but also an indicator of innovative behavior is rate of growth (Brickell,1971). If this data is not available from school districts themselves or state education departments, U.S. Census Bureau data on rate of population change may provide an adequate measure.

A fourth demographic variable which has been shown to be an important predictor of innovative behavior is environmental heterogeneity (Baldridge, 1974; Berman & McLaughlin, 1975). This is the most difficult variable to measure, including dimensions such as population density, degree of urbanization, income distribution, and racial balance, not all of which

may be readily obtainable from secondary sources. However, due to the number of studies which have shown the environment to be an important predictor of school behavior, to the extent a marketer is able to obtain good environmental measures, this variable offers potential as a basis for segmentation.

A second category of objective variables which may provide useful segmenting bases are structural variables. These variables are more difficult to measure than are demographic variables, and unless the dissemination strategist has first hand knowledge from prior experience with potential adopters, it is likely that some form of primary data gathering will be necessary. The potential advantage of structural variables is their predictive power (diversity criterion). A disadvantage of structural variables relative to demographic variables is the lack of research results documenting their successful usage as determinants of innovative behavior.

Structural variables likely to be of use to educational marketers as segmenting variables include organizational complexity, staff composition, and amount of inservice training offered. Research results indicate that a more complex organization is more likely to adopt innovations (Zaltman et al., 1974; Baldridge, 1974; Wind, 1971). Complexity can be measured by determining the number of different job titles in the organization and comparing this with other organizations of the same type. This should be a relatively simple task when the target organizations are school district administrations or state education departments. Complexity is likely to be correlated with size, but a more powerful behavioral indicator. One problem with using complexity as a segmentation basis is that it appears to have a hindering affect on implementation efforts, even though it is positively correlated with adoption (Zaltman et al., 1973).

Related to complexity is staff composition. Specifically, it has been suggested that the existence in schools of internal change agents (e.g. science curriculum coordinator), whose primary job function is to assess current programs for possible adoption, is directly related to the degree of innovative behavior (see for example, Knight & Gorth, 1975; Miles, 1974). This should be a very easy structural variable to measure (requiring no more than a phone call to schools or district administrations), and therefore a potentially useful segmenting variable.

Finally, research reported by Miller (1974) indicates the possibility of using the amount of inservice training offered by school districts and the number of media specialists available to a school as potentially useful segmenting variables. As with staff composition, measurement of these variables should present little difficulty.

Notably lacking from the list of structural segmenting variables useful to the educational marketer is centrality. While this variable has been used more than any other structural variable to segment industrial markets, there is probably not sufficient diversity in degree of centrality of educational organizations to warrant its use as a segmenting variable.

Organizational-Level Characteristics--General/Inferred

As noted earlier, inferred characteristics are those which do not have readily available measures, implying they must be deduced from other information about the organization. Since the measurement task is more difficult, the value of inferred variables as segmenting bases must come from their ability to identify diverse segments better than objective measures, or from an increased capability of the dissemination strategist to access target segments using these variables.

While the marketing segmentation literature contains many descriptions of creative types of inferred variables which score very high on the diversity criterion, most attempts to use these variables have failed due to lack of ability to measure them adequately (measurability) or use the measures to differentially gear efforts to target segments (accessibility).

Until more research is done to overcome such problems, the educational marketer should be critical of inferred variables. This does not mean, however, that they should be ignored altogether. For example, one inferred variable which may be a powerful segmenting variable is the purchasing goal of schools interested in innovation: is the school district seeking to innovate in order to solve a problem or correct a deficiency (problem-solving motive), or is the true motivation to respond to a chance for outside funding (opportunistic motive)? Such a measure would likely separate school districts into extremely diverse groups and suggest very different appeals to use in order to access the segments differentially (Berman & McLaughlin, 1975; Sikorski, 1975). The major difficulty is measurability--school districts whose true motivation in innovating is fund raising are likely to be reluctant to admit it, so this must be inferred from other, observable characteristics.

A second type of inferred characteristic which offers potential for segmenting educational markets is labelled "psychographics" in Table R. In a review article of the state of the art in psychographic research, Wells (1975) defines such research as "quantitative research intended to place consumers on psychological--as distinguished from demographic--dimensions." Psychographic variables include activities, interests, opinions, needs, values, attitudes and personality traits. Wells' definition reflects the fact that virtually all psychographic research to date has been done in the area of consumer goods marketing.

As such, useful segmenting variables for educational marketers are more likely to exist at the second stage of segmentation--characteristics of individual decision makers. However, there is some evidence which indicates organizations have needs, values, and attitudes which do not necessarily reflect those of any single decision maker. One such variable might be labelled "openness of school climate," which would measure the school's receptivity to new ideas. If a reliable measure of this variable could be constructed, it is likely it would be a powerful segmenting variable.

In the future, other psychographic characteristics of organizations may become extremely useful as segmenting variables due to their superior ability to isolate diverse segments. At this time, however, lack of research results and problems of reliability and validity cast doubt on the current usefulness of these measures at the organizational level.

Organizational-Level Variables--Situation-Specific/Objective

As noted earlier, situation-specific variables are those relating to interactions between the dissemination strategist and potential adopters. As segmentation bases, situation-specific variables are likely to be more powerful predictors of innovation adoption/implementation than general variables. In addition, target segments are likely to be more accessible using situation-specific variables. However, because of their specificity, these variables are generally more costly to use than general (enduring) variables due to the inability of deriving measures from secondary sources of information and the inability to generalize these measures to future dissemination tasks. The dissemination strategist should carefully weigh the advantages and disadvantages of these variables before selecting them as segmentation bases.

In both consumer goods and industrial marketing, the most commonly used situation specific variables are product usage and brand or source loyalty. Segmentation by product or service. While this variable is a very useful segmenting variable for educational marketers disseminating "routine" products (e.g. school supplies), it is not applicable for the initial dissemination efforts with innovations, as potential customers are all non-users at the time in question.

Although source loyalty (particularly at the individual decision maker level) might appear to be a powerful segmenting variable for educational products, empirical evidence indicates it is not (Turnbull et al., 1974; Sikorski & Hutchins, 1974).

One variable which appears promising as an objective basis for segmentation is the buying situation faced by potential adopters. With innovations which have been in existence for some time, potential adopters may view the adoption/implementation of the innovation as a completely new task, a modification of an earlier buying task (modified re-buy), or a simple duplication of an earlier buying task (straight re-buy) (Faris 1967). Table 5 depicts the differences in these decisions in terms of the rule of prior experience, the need for information, and the amount of effort required to make a decision. The usefulness of this variable stems from the fact that educational innovations are so complex. Most adoption/implementation decisions require significant amounts of experience, information, and effort. This complexity may also help explain why source loyalty does not appear to be a useful segmenting variable.

TABLE S

DISTINGUSHING CHARACTERISTICS OF THE BUYING SITUATION*

Type of Buying Situation	Experience: Newness of The Need	Information: How Much Is Required?	Effort: Consideration of Difficult Alternatives
New Task	High	Maximum	High
Modified Re-buy	Medium	Moderate	Limited
Straight Re-buy	Low	Minimal	None

*Reprinted from Faris (1967)

Organizational Level Variables--Situation-Specific/Inferred

The concept of market segmentation was "revolutionized" in 1968 with the introduction of a scheme to segment potential users of a product or service sought according to different benefits desired (Haley, 1968). For example, the dry cereal market might be divided into two segments, one of which seeks health, nutrition, and naturalness, while the other is more concerned with taste, economy, and convenience (Baumwoll, 1975). Or the market for airline travel might be divided into segments whose primary concerns are varying combinations of safety, equipment, stewardesses, food, comfort, schedules, and economy.

Common examples of benefits desired by educational organizations which could be used as segmenting variables are economy, training aid, low risk, and potential for improvement on standardized tests. Many others are possible, depending on the type of innovation.

Although benefit segmentation is more applicable at the individual decision maker stage, it may be useful to employ the use of benefit variables at the organizational level for either of two reasons:

1) the benefits sought by educational organizations are very similar to those sought by individual decision makers acting in their professional roles; 2) the cost of measuring benefits sought by individual decision makers outweighs the added power of these variables to identify diverse segments.

Benefit variables are likely to identify significant diverse segments if such diversity exists. The nature of these variables also ranks them very high on the accessibility criteria. The biggest problem with benefit variables is the difficulty in deriving valid, reliable measures.

Decision Maker Variables--General/Objective and Inferred

Once the first stage of the segmentation procedure has been accomplished, the dissemination strategist must decide whether to proceed with a refinement of the derived segments using some characteristic of the individual decision makers as a secondary segmenting variable. The decision as to whether to do this should be a function of: 1) the type of innovation (as noted earlier, some innovations are more appropriate than others for segmentation at the individual level); 2) the number of individuals involved in the decision process (a large number is likely to weaken the usefulness of segmenting at the individual level); 3) the ease of identifying and accessing individual decision makers: and 4) the relative autonomy and influence of key decision makers.

Once a decision is made to segment at the individual level, the strategist faces the same choices as with organizational segmenting variables: general versus situation specific, and objective versus inferred. The relative advantages and disadvantages of variables falling into any of the four categories are ide tical to those of organizational variables. Situation specific variables are more powerful than general variables and lead to a greater degree of accessibility. But they are

more costly to measure, less generalizable, and less stable (i.e. usually results will change over time and therefore they need to be measured immediately prior to being used for their action-implications).

Objective variables are more easily measured than inferred variables but usually less powerful in identifying diverse segments.

As is true of consumer goods marketing, the most work in education relating to bases for segmenting individuals has been with demographic (general) variables. For individuals this includes relatively permanent descriptive characteristics such as sex, race, age, income, and so forth. Since such variables tend to define many of the most visible in-and out-group configurations, they are, not surprisingly, often important predictors of individual behavior. Demographic variables are, in general, relatively easy to measure. As concepts, they are not usually elusive or ambiguous, and measures tend to have face validity. In addition, these variables have always been of interest to social scientists; much is known about differences among persons or organizations with different characteristics. Thus, dissemination efforts and selective reach may be facilitated by the extensive information available about behavior, locale, preferences, etc., of groups which differ on demographic variables.

However, despite this, a weakness associated with using demographic variables is the generally weak relationship between demographic variables and the kinds of dependent variables of interest in educational dissemination. Though there may be statistically significant differences between subgroups, there is also likely to be much variance within subgroups. Thus, though young teachers in general may be innovative, many are not; or though large districts in general may adopt more inservice materials, many do not. Hence, subgroups are clearly homogeneous in regard to the segmenting variable, but they are usually relatively heterogeneous with regard to the dependent variable. Table Q points to the "general" nature of

demographic variables; they exist or are defined independently of a specific product or service. Correspondingly, their effect on behavior relevant to a specific product or service is indirect and diffuse. Younger teachers may change more readily because they have less invested in the status quo, and not because they are young per se. Large districts may adopt more inservice materials because they have more centralized coordination of district-owned materials and not because they are large per se.

In short, demographic variables are useful for segmenting more because of what else (e.g., media habits, attitudes, etc.) is known about resulting subgroups than because of a stable and strong relationship to the usual consumption variables.

Baldridge (1974) studied a number of characteristics of educational decision makers and found the only individual characteristic related to adoption of innovations by organizations was the individual's administrative position. Other individual characteristics appeared to have little impact on whether or not innovations were adopted by organizations; this suggests either that such characteristics are unlikely to be useful as segmenting variables in these situations or that when the unit of change is the individual, one or more individual characteristics should be combined with a role or position variable, since individual "innovativeness" has impact only where the individuals in question have an opportunity to practice innovative behavior and influence others to do so.

While this variable is probably the most promising demographic segmenting variable, other individual characteristics which may have some potential as segmenting variables in past research are skills and number of years at the job (Rogers & Shoemaker, 1971; Baldridge, 1974; Knight & Gorth, 1975).

At the individual level, more promising than demographics are psychographics. As noted earlier, psychographic variables are inferred measures differentiating individuals on psychological dimensions. These variables include activities, interests, opinions, needs, values, attitudes, and personality traits. In the past ten years, the primary focus of segmentation in marketing has been on psychographics (Wells, 1975). Although psychographic research presents difficult measurement tasks, both in selecting valid behavioral characteristics which will identify diverse segments, and in developing reliable measures of those characteristics, continued research in psychographics is bound to produce superior segmentation schemes.

Psychographic variables which are particularly promising for segmenting individual educational decision makers are innovativeness, cosmopoliteness, career satisfaction (particularly for teachers), and authoritarianism (Rogers and Shoemaker, 1971; Havelock, 1969, Knight and Gorth, 1975).

Closely related to cosmopoliteness is information-seeking behavior. This includes media preferences, professional affiliations, and interpersonal source preferences. While this variable may present some measurement difficulties, if diverse segments with regard to information-seeking behavior do exist, differential accessibility is virtually assured.

Decision Maker Variables--Situation Specific/Objective and Inferred

A very promising situation-specific variable is stage in the adoption process. Its use as a segmenting variable has in the past been limited, due to failure to identify systematic differences in attitudes, needs, and behavior as a function of stage in the adoption process. Part of the reason this link has not been established is that much of the work

in diffusion has focused on relatively simple innovations such as new types of medicine or new agricultural products (Rogers & Shoemaker, 1971). Most educational innovations are extremely complex, and their adoption and use involve many people (Baldridge, 1974; Hall, 1974a). Disseminators who consider the adoption/implementation process essentially static are likely to "give up" on potential adopters too early. In fact, the full adoption process for complex educational innovations generally requires 3 to 7 years (Hall, 1974a). With these considerations in mind, the dissemination strategist should recognize and make use of the fact that potential adopters have changing concerns as they move through the adoption process, which affect both their knowledge of and their behavior concerning the innovation (Hall, 1974b). The relationship between these concerns and the stages of the adoption process have been incorporated into the Concerns-Based Adoption Model (CBAM) by the R&D Center for Teacher Education at the University of Texas (Hall, 1974b). The model posits that as potential adopters move through the adoption process from non-use to orientation, to initial training, to mechanical application, to independent use, to integrated use, and finally to adapting the innovation to fit specific situations, the needs, problems, motivations, and requests of potential adopters also change from unawareness to vague awareness, to concern for how much time it would require to learn about the innovation, to inservice concerns, to how the innovation relates to other things used in the school, to adaptive concerns. The focus here is on the individuals involved in the adoption process rather than the entire user system. The CBAM hypothesizes a successful adoption only if these changing individual concerns do not get too far ahead or lag too far behind the stages of the adoption process.

From the standpoint of segmentation, this model suggests that the dissemination strategist should segment his market according to stage in the adoption process and target efforts to different segments based on the appropriate concerns of individual decision makers at each stage.

One final category of situation-specific variables which might be profitably used to segment individual decision makers is benefits sought. These are inferred characteristics whose segmenting capability is based on the fact that different users or decision makers may be looking for different benefits to be derived from the adoption of an innovation. Some of these were mentioned earlier as different organizational benefits: economy, training aid, low risk, and potential improvement on standardized scores. In addition to these benefits, individual decision makers may be interested in other benefits, particularly if the decision makers are also the ones who will use the innovation if adopted. These additional benefits include ease of use, time savings, labor savings, and status. As noted earlier, benefit variables score very high on the diversity and accessibility criteria for selecting segmenting variables, but they are often difficult to measure. This is particularly true at the individual level, where actual benefits desired may be socially or politically unacceptable (e.g. status). Table T summarizes this evaluation of some of the potential segmenting bases for educational dissemination. While the ratings are only roughly assigned, they indicate how the dissemination strategist can evaluate variables available to him for particular dissemination tasks. The final column of the table lists the kinds of interventions which could make best use of the segmentation information. For example, knowledge of school wealth suggests using pricing variations while knowledge of benefits sought is very useful for designing alternative promotional appeals.

TABLE T:

EVALUATION OF POTENTIAL SEGMENTATION VARIABLES RELATIVE TO EACH OTHER

CRITERIA

VARIABLES	Diversity	Substantiality	Measurability	Accessibility	Cost to Use	Appropriate Interventions-Variables
Organization Environmental Heterogeneity	Medium-High	High	Low-Medium	Medium	Low-Medium	Promotion Distribution
Organization Location	Low-Medium	Medium	High	High	Low	Distribution Product Price
Organization Size	Low-Medium	Medium	High	High	Low	Price Distribution
Organization Wealth	Low-Medium	Medium	Medium-High	High	Low	Price
Amount Inservice	High	Medium-High	Medium	Medium-High	Low-Med	Product
Organization Complexity	High	High	Med-High	Medium-High	Medium	Distribution
Staff Composition	Medium-High	Medium-High	Medium	Medium-High	Low	Distribution Promotion
Organization Purchasing Goals	High	Low-Medium	Low	Medium	Med-Hi	Promotion
Organization Openness	High	Medium	Low	Low-Medium	Med-Hi	Promotion Distribution
Organization Buying Situation	High	Medium-High	Low	High	High	Distribution PromotionPrice
Benefits Sought (Organization)	High	High	Low-Medium	High	High	Product Promotion
Individual Position	Medium	Low-Medium	High	High	Low	Distribution Promotion
Individual Years at Job	Medium-High	Medium-High	High	Low-Medium	Low	Product Promotion
Individual Information-Seeking Behavior	Medium-High	Medium-High	Low-Medium	High	Medium	Promotion Distribution
Individual Stage of Concern	High	High	Medium-High	High	Med-Hi	Promotion Distribution
Individual Benefits Sought	High	High	Low	High	High	Product Promotion

SOME APPLICATIONS

In 1974, Turnbull et al. concluded: "The concept of market segmentation has had only the most rudimentary use in education, but it seems to hold promise." They gave one example of use--that by Technology for Children (TAC), a K-6 career education curriculum. The staff made informal assessments of different schools' level of interest in the program and they devoted their efforts to the most probable adopters. The variable, level of interest in the specific innovation, is situation-bound and could be considered a type of "usage" variable, or an indicator of probable future use.

This example points up the liklihood that dissemination plans frequently involve a strategy of market segmentation, although it may not be formally labeled as such. It is natural to use whatever knowledge one has to target dissemination activities more effectively. However, as earlier sections made clear, the effective application of the strategy should be systematic, in order to insure usefulness of results. This section describes some systematic applications.

Targeting Information to Potential Users of Vocational Education Programs and Materials (Far West Laboratory study for the Office of Education's Bureau of Adult, Vocational and Technical Education). In this study, the investigator is using the variable "attitude toward vocational education programs" to segment a particular market (low-income minority youth) for vocational education programs and materials. The analysis revealed two types of students with significantly different attitudes toward vocational education and work. Type 1 students are

positive about vocational education and believe that taking vocational education courses leads to better jobs, that the teachers are good, and that the courses are interesting and useful. Type 1 students are encouraged to take vocational education courses by people they respect and admire.

Type 2 students are negative about vocational education, believing that the courses are poorly taught, boring, or difficult and that there are too few minority vocational education teachers. They also feel that vocational education courses will not help them get jobs and view vocational education as a hindrance to getting into college. Type 2 students are encouraged to go to college by their parents and people they respect.

An important difference between Type 1 and Type 2 students relative to attitudes about work is their degree of acceptance of the Protestant work ethic. Though both types generally disagree with the statement "Work is for people who can't figure out ways to avoid it," Type 2 students disagree less adamantly.

Also, Type 2 students feel "pulling strings" is more important in securing a job than do Type 1 students. There is some evidence that Type 2 students have more of an external locus of control than Type 1 students: They feel that they need more than just their own effort to get where they want to go. Type 1 students may feel somewhat more that their fates are self-determined.

The segmentation variable used could be considered a psychographic one or a kind of usage-variable. Either way, segments yielded have fairly clear implications for targeting information capaigns. That is, an effective information campaign to involve these students in vocational education programs will require, for Type 1 students, the provision of information about options and avenues for getting involved; for Type 2

students, there must be information to change their attitudes toward vocational education itself.

However, information on attitudes of different segments allows for selective reach only via self-selection of messages by appropriate targets. Such information does not have implications for controlled coverage to influence segments differentially. Additional information on demographic variables was collected, but attitude segments were alike demographically, so selective reach could not be facilitated there. In follow-up work, the investigator plans to collect psychographic data--particularly on activities and interests and on information-seeking habits to determine the channels available for reaching members of each segment via more controlled coverage.

Market Data Retrieval. This commercial firm has an education data bank that generates mailing lists of schools and teachers or districts which can be selected by one or a combination of criteria, materials and supplies expenditures, enrollment size, grade level, geographic location, and titles. Thus, for a fee, the dissemination strategist can have the market broken down on a number of demographic variables. A Market Data Retrieval representative states: ". . . you selectively mail to the segment of the school market most apt to purchase your product or service.

> Our National School Market Index is, in essence, a county by county summary of public and private school expenditures for instructional material breakdowns: audio-visual materials, textbooks, teaching supplies, and library materials.
>
> County Buying Power Maps visually illustrate the national distribution of school buying power so you can identify at a glance those counties which spend the most money on instructional material and proportion your sales effort accordingly.

> A Sales Territory Roadbook gives a salesman a computerized outline of his sales territory. Included are: the name and address for each school and district in his territory, their dollar potential, per-student expenditures, district phone number, enrollments, grade span and customer account numbers." (from a letter accompanying MDR promotional materials)

The limitations here are obvious--the dissemination strategist can use the information to determine who can and is likely to purchase and to target grade level innovations, but there is no special insight regarding likely appeals.

Again, though the variables involved are demographic, they could also be considered types of usage variables.

Level of Use of the Innovation. (Hall et al., "Procedures for Adopting Educational Innovations Project," R & D Center for Teacher Education, The University of Texas at Austin). As discussed earlier, this project has articulated eight discrete levels of use of an innovation by an individual (ranging from no knowledge of the innovation, to effective use of the innovation, to searching for a superseding innovation). The level of use dimension describes behaviors of the user at each stage; it is ". . . an attempt to define operationally various states of innovation user behavior" (Hall et al., 1975). For each stage, there is a description of knowledge, information acquisition activities, sharing, assessing, planning, status reporting, and performing.

The authors are studying the relation of concerns of innovation users with the level of use variable and also how these relate to other critical change variables. Their goal is to be able to assess individuals within schools in terms of level of use and concerns, to enable the selection of appropriate intervention strategies and tactics--to facilitate use of the innovation and minimize "the trauma of change."

CONCLUSION

Part III has presented the general issues of when to use a segmentation scheme, how to implement it, and what variables can be used as a basis for segmentation. Evident throughout the discussion is the necessity for the dissemination strategist to exercise his own judgment in choosing and implementing a segmentation strategy. Each situation presents unique opportunities, but in a context of particular constraints. The strategist must consider how to capitalize on the opportunities, given the constraints. Hopefully, the guidelines presented in this report will help him in this task.

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APPENDICES

APPENDIX 1: School Discrepancies

1. Adaptability
2. Administration
3. Bandwagon
4. Complete/Supplementary
5. Core/Elective
6. Cost
7. Demonstratability
8. Developer
9. Disruptiveness
10. Divisibility
11. Early/Late Feedback
12. Effect
13. Evaluation
14. External Support
15. Horizontal/Verticle
16. Information
17. Materials
18. Peer Opinion
19. Personnel
20. Priority
21. Product/Process
22. Programmed
23. Purchase Accessibility
24. Reorganization
25. Self-sufficient
26. Sequential
27. Space
28. Structured
29. Subject Matter
30. Target
31. Theory
32. Time
33. Training
34. Unit of Adoption

APPENDIX 2: Treatments

MACOS VIEWS

A PUBLICATION OF FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT. 1855 FOLSOM STREET, SAN FRANCISCO, CA 94103. THE LABORATORY IS A PUBLIC NON-PROFIT ORGANIZATION SUPPORTED IN PART BY THE DEPARTMENT OF HEALTH, EDUCATION AND WELFARE.

Target Treatment
MACOS

This newsletter is designed to briefly acquaint you with *Man: A Course of Study (MACOS) — a flexible, multimedia social studies course for upper elementary and middle school students.* MACOS emphasizes learning to use social science skills — observing, collecting data, hypothesizing, finding and solving problems — to investigate the roots of man's social behavior. Why are human beings born so helpless? How do survival requirements affect animal behavior? What is the function of aggression? territoriality? sharing and reciprocity? These are some of the questions students will explore through the study of selected animal societies, culminating with an in depth investigation of the concept of culture in a study of the Netsilik Eskimos. Films and booklets, based on the field work of explorers and anthropologists, are the major materials used to develop skills for thinking about man and developing informed concern for man's condition. Students relate the films, stories, and poems to their own life experiences, and become increasingly confident of their own abilities to express thoughts and feelings. In MACOS there is less focus on the teacher, allowing both teacher and students greater freedom in creating a program which fits the needs of the classroom.

MACOS involves . . .

- preservice and inservice workshops and seminars for teachers
- professional consultation services
- ungraded curriculum designed by an international faculty of scholars
- a large range of media styles and complexity in materials, emphasizing visuals

FREQUENTLY ASKED QUESTIONS

Why must we go through required training before we can teach this new curriculum?

The content, organization, and philosophy of MACOS offers a new role to teachers; they become resources instead of lecturers. The inservice training helps teachers make this transition. In addition to broadening their knowledge of the course content, teachers learn how to invent and test their own materials and strategies. Teachers who complete MACOS training become part of a national network of skilled professional personnel, who are colleagues of the developers and cooperate with an international faculty.

Why should we even try to teach cultural anthropology in 5th or 6th grade?

MACOS explores through various media and creative exercises some keenly interesting contemporary topics, such as conservation, ecology, consumption, culture, and other social science concepts. The use of film builds enthusiasm; the ingenious games, construction activities, and observation projects allow students to work in small groups, or individually, with minimal adult direction. Throughout the program, students learn to gather, organize, and examine data in ways similar to those of social scientists. MACOS has proven to be a highly motivating program successfully involving students of varying aptitudes and abilities.

Doesn't this curriculum take too long to provide feedback about how well each child is doing?

The inservice training emphasizes the continuous nature of student evaluation and avoids reliance on paper-and-pencil objective tests. MACOS-trained teachers develop a whole array of evaluation techniques to assure themselves that pupils *are* learning. Teachers receive a booklet called "Evaluation Strategies" that spells out such methods as interviews, classroom environment checklists, creative responses, content questionnaires, classroom observations, opinion surveys, etc. Of course, these improved evaluation strategies can be used with other parts of the school's intermediate-level curriculum as well. (Incidentally, studies show MACOS pupils do not fall behind on standardized tests.)

Isn't a daily social studies lesson-plan too demanding for an overworked elementary teacher?

The plans provided in the program are only models. There's no fixed schedule. Teachers use their own professional judgment, their creative instincts, and their practical experience to adapt MACOS to their own classroom needs. A flexible curriculum like MACOS can be offered regularly — or irregularly — according to each teacher's own pace. Some topics can be probed in depth, others merely skimmed. Teachers can add or subtract materials to meet their own requirements. Because students engage in independent investigations, self-study and pupil-oriented discussions, they are busy with their own projects much of the time, and the teacher simply "advises."

Why should we try to "improve" our present 5th-6th grade social studies program when our pupils are having so much trouble with basic skills like reading?

MACOS, being *film-oriented,* appeals to youngsters who are turned off by "remedial" reading texts. Because the course relies on *shared* learning among pupils, those who cannot yet read or write easily can view and listen and then express their ideas in group activities. The reading level of student booklets ranges from 2nd grade upward so every pupil can read some part of them. Carrying a MACOS booklet home is *very* different from carrying around a basal reader; no pupil will be taunted for being a non-reader. And pupils prefer booklets to traditional texts. (Test results now being compiled indicate that MACOS *helped* solve reading problems in a school where all else had failed.) Science, art, reading, and other middle-grade subjects can easily be coordinated with MACOS.

How can we possibly fit this year-long program into our present K-6 social studies curriculum?

A number of the K-4 curricular offerings lead logically into the use of MACOS in the middle grades. During the MACOS inservice training teachers are introduced to the curriculum design and core concepts of the program. This training gives them the experience needed to shape current curriculum so that it will lead into or follow smoothly from MACOS itself. Furthermore, the aims of MACOS dovetail with all the other social studies goals of the nation's schools — providing ways to analyze man and his social world, building concern for the human condition, giving pupils confidence in the powers of their own minds, and so on.

TEACHER REACTIONS

We asked teachers who had taught MACOS to give their impressions of this curriculum, both pro and con:

- "It develops vocabulary and builds enthusiasm; kids start asking really interesting questions."

- "Some kids who have been turned off in class are raising their hands willingly and really getting into it."

- "When I first thought about using it, I was a little hesitant because it meant going through a training program. But the training turned out to be enjoyable, and not all that time-consuming."

- "I like to use it daily; it's one of the things in my class that my kids really like to do."

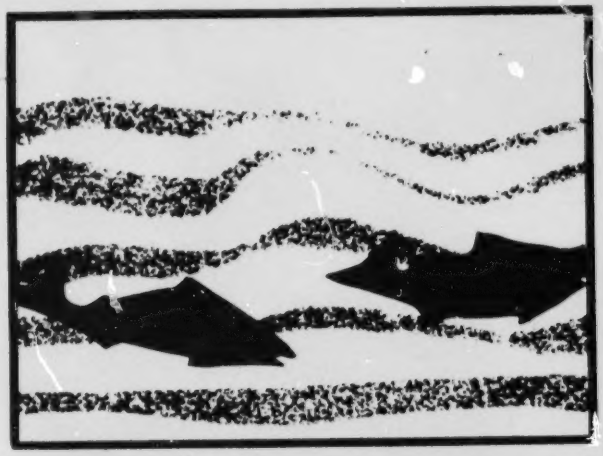
- "It's a fun thing to teach because you can get results immediately."

- "Everything we learn in the course is of as much interest to me as it is to the kids."

- "Our social studies discussions include current events and other subject matter besides cultural anthropology. The kids are applying the thinking processes they develop in MACOS to these other areas, too."

FOR ADDITIONAL INFORMATION ABOUT MACOS WRITE:

Doris Smith
Far West Laboratory
1855 Folsom Street
San Francisco, California 94103



PREVIEW KIT AVAILABLE

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(Limited time offer — limit 1 kit per school)

Please send me a MACOS Preview Kit.

_____
(name)

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(name of school)

_____
(address of school)

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MACOS VIEWS

General Treatment
MACOS

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MACOS involves . . .

- preservice and inservice workshops and seminars for teachers
- professional consultation services
- ungraded curriculum designed by an international faculty of scholars
- a large range of media styles and complexity in materials, emphasizing visuals

FREQUENTLY ASKED QUESTIONS

With the cost of films, games, records, booklets, and inservice, how can we possible afford to use MACOS?

Worthwhile educational innovations rarely have a short payoff time. The complete program can be installed in your school for about $21/pupil (for 150 pupils). Most materials are reusable, so that replacement and maintenance costs are minimal. Over five years, per pupil expense should run about $4/year. Furthermore, the MACOS distributor offers extended lease/purchase if desired, and provides inservice training at no charge to large MACOS installation efforts.

Where could we possibly get external financial support needed to implement MACOS?

Various sources that fund curriculum development or staff development can be tapped — for example, Titles I and III of ESEA or Title III of NDEA. The National Science Foundation also sponsors training institutes, and various universities offer inservice courses. For a complete listing of current sources contact:

Ms. Frances Link, Dept. FWL
Curriculum Development Associates
1211 Connecticut Avenue
Washington, D.C.

Telephone: 202-293-1760

What kind of experience is needed to teach MACOS successfully?

Teachers need no special content expertise to effectively use the MACOS program. In the MACOS inservice program, teachers learn how to play the games, how to adapt the lesson plans to individual teaching preferences, how to develop other materials as needed, and so on. Both inexperienced and experienced teachers have used MACOS successfully in all kinds of settings, frominner city to suburbia.

Why must we go through required training before we can teach this new curriculum?

The content, organization, and philosophy of MACOS offers a new role to teachers; they become resources instead of lecturers. The inservice training helps teachers make this transition. In addition to broadening their knowledge of the course content, teachers learn how to invent and test their own materials and strategies. Teachers who complete MACOS training become part of a national network of skilled professional personnel, who are colleagues of the developers and cooperate with an international faculty.

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The inservice training emphasizes the continuous nature of student evaluation and avoids reliance on paper-and-pencil objective tests. MACOS-trained teachers develop a whole array of evaluation techniques to assure themselves that pupils *are* learning. Teachers receive a booklet called "Evaluation Strategies" that spells out such methods as interviews, classroom environment checklists, creative responses, content questionnaires, classroom observations, opinion surveys, etc. Of course, these improved evaluation strategies can be used with other parts of the school's intermediate-level curriculum as well. (Incidentally, studies show MACOS pupils do not fall behind on standardized tests.)

FOR ADDITIONAL INFORMATION ABOUT MACOS WRITE:

Doris Smith
Far West Laboratory
1855 Folsom Street
San Francisco, California 94103

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MACOS PREVIEW KIT
Far West Laboratory
1855 Folsom Street
San Francisco, California 94103

Attention: D. Smith

TEACHER REACTIONS

We asked teachers who had taught MACOS to give their impressions of this curriculum, both pro and con:

- "It develops vocabulary and builds enthusiasm; kids start asking really interesting questions."
- "Some kids who have been turned off in class are raising their hands willingly and really getting into it."
- "In training, what we did was survey the material, watch the films, play the games, and go through the manuals step by step. It was worth it, just so that it wasn't new to me the first time the kids saw it."
- "When I first thought about using it, I was a little hesitant because it meant going through a training program. But the training turned out to be enjoyable, and not all that time-consuming."
- "It's a fun thing to teach because you can get results immediately."
- "You have to study the materials before starting the course; you can't go into it cold. Training is a shot in the arm — it forces you to get in touch with the materials."

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(Limited time offer — limit 1 kit per school)

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MINIVIEWS

Target Treatment
MINICOURSES

A PUBLICATION OF FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT, 1855 FOLSOM STREET, SAN FRANCISCO, CA 94103. THE LABORATORY IS A PUBLIC NON-PROFIT ORGANIZATION SUPPORTED IN PART BY THE DEPARTMENT OF HEALTH, EDUCATION AND WELFARE.

This newsletter is designed to briefly acquaint you with the *MINICOURSE — an inservice skill development program for teachers.* Minicourses are a major educational breakthrough which are designed to make beneficial changes in your teaching methods and procedures. This innovation is formulated to help you improve important classroom skills, such as increasing the use of stimulating questions, the amount of pupil participation in discussion lessons, etc. This program is based on a technique called microteaching, which involves videotaping and analyzing your own teaching skills. After reading a training handbook and viewing instructional films, you personally prepare a short lesson combining new skills with your own classroom materials. You then videotape this lesson with a small group of your own students. After analyzing and evaluating your own performance, you reteach the lesson incorporating what you've learned.

MINICOURSES involve . . .

- 16mm color films that demonstrate specific teaching skills
- teacher handbooks that outline course activities
- seeing yourself on videotape as you practice skills with your own students
- three hours of teacher time each week, spread over a 5-week period
- earning graduate credit without leaving your school building

FREQUENTLY ASKED QUESTIONS

Why should I learn the skills that Minicourses teach?

If you already have higher-level questioning skills, are able to individualize instruction easily, etc., maybe you don't need to bother. That's for you to decide. But, perhaps you haven't had the opportunity to analyze your teaching patterns. If you haven't had a chance to review your skills for some years, or if some skill areas were overlooked in your preservice experience, here's a unique way to develop yourself professionally during regular school hours. Like each teacher who's used Minicourses, you will have your own reasons for trying them.

How do we find space in our crowded building for the microteaching sessions?

Space can be a problem, making extensive scheduling necessary at times. If a vacant classroom isn't available, try using the nurse's room, a cooperative principal's office, a stage area, a mobile van, a large storage room, or any other temporary place. Since the VTR equipment can be stored in a closet, the room need not be used exclusively for microteaching.

Is there a Minicourse for the specific grade and subject(s) I teach?

That depends on how you view *skill* training. The math Minicourse focuses on individualizing instruction in grades 4-8, but the skills will be useful to a teacher working with younger or older children — and an alert teacher will see how to use the same skills in a geography or science or reading lesson. There are other Minicourses (such as those dealing with questioning skills) that can be used at any grade level, for any subject. Currently, seven Minicourses are available. The specific application of a Minicourse is a function of the teacher's own ingenuity.

Where do we get videotape recording equipment?

Though you may not be aware of it, your district probably owns or has access to videotape recording equipment, since it has become a standard inventory item. Scheduling is usually done through the AV specialist or the district office. Minicourses require about a month's use of the videotape recording equipment. If your district is unable to supply the proper equipment, it may consider rental or purchase if sufficient interest is shown.

How can I maintain discipline among my students if I leave my room for microteaching practice?

Most innovations require changes in the present routine. In the case of Minicourses, the extra time and effort is rewarded immediately by improved interaction with students. The Minicourse handbook and films suggest ways to prepare students for microteaching. Many children appreciate the change in routine and are fascinated when their turn comes. Even students who don't participate in the microteaching sessions show higher motivation and greater interest in class. Your principal or Minicourse coordinator will help make arrangements for someone to be responsible for your class during these brief sessions.

FOR ADDITIONAL INFORMATION ABOUT MINICOURSES WRITE:

Doris Smith
Far West Laboratory
1855 Folsom Street
San Francisco, California 94103

THE FOLLOWING MINICOURSES ARE AVAILABLE:

- Effective Questioning
- Developing Children's Oral Language
- Individualizing Instruction in Mathematics
- Organizing Independent Learning: Primary Level
- Organizing Independent Learning: Upper Elementary Level
- Higher Cognitive Questioning
- Teaching Reading as Decoding

TEACHER REACTIONS

As with any innovation, teachers have had different reactions to Minicourses. The following are representative comments:

- There's nothing like it — it was a welcome change from traditional courses."

- "You become aware of the effect that different kinds of questions have on student responses, and learn how to ask more effective questions."

- "I thought it would be disruptive, but several kids' classroom behavior actually improved after seeing themselves on videotape."

- "It was a real eye-opener for me; not only did I become aware of some annoying mannerisms, but I decided to go on a diet and lost 45 pounds."

- "I was a little bit afraid of taking the Minicourse on higher cognitive questioning, because I'm not used to working with middle-grade children. But I'm really enjoying it because it gives me a view of the child in those grades."

- "At first you feel uncomfortable having something 'watching' you, but you get used to microteaching and the kids do, too."

SPECIAL INSERVICE CREDIT

Teachers completing Minicourse training may obtain graduate credit from their local colleges. If your school district hasn't already arranged for this credit, you may do so by contacting the following representative in your area:

ILLINOIS:
Dr. Louise Dieterle
Illinois State University
Bloomington, Illinois
(309) 438-2206

CALIFORNIA:
Mr. Dick Bateman
Far West Laboratory
San Francisco, California
(415) 565-3015

PREVIEW KIT AVAILABLE

The best way to judge Minicourses is to see them in action. Borrow a preview kit free from our library and see how Minicourses improve teaching skills.

The kit contains:
- An introductory 16mm film that defines skills and objectives and describes the microteaching system
- A second 16mm film that shows a sample instructional sequence
- Handbooks for teachers and coordinators

Your only obligation is to return the kit within two weeks. Just fill out, detach, and return the card below.

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(name)

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Where could we possibly obtain external financial support needed to implement Minicourses?

School districts have proved themselves extremely ingenious in writing Minicourse training into all sorts of Federally-funded proposals, including, for example, Titles I and III of ESEA. Any Federal (or State) program that supports inservice training for teachers, paraprofessionals, or parent aides offers you a chance to fit the purchase or rental of one or more Minicourses into your request for funds from the sponsoring agency. The Educational Services program of the Far West Laboratory may even be able to help write your proposal, if Laboratory consulting help is included in the funds being sought. Your own district's Federal Projects expert can tell you which current funding efforts will best fit your training needs.

Who pays when a teacher takes a Minicourse?

The teacher pays nothing, unless the Minicourse is being used to obtain credit from a cooperating college. The school district buys or rents the Minicourse films, gives the teacher a handbook, schedules released time for microteaching, and transports the films from building to building as needed. If 10 teachers were trained with a rented Minicourse, cost per teacher would run about $20 to the district, plus any arrangements for substitute assistance. For a large number of participants, purchase is more economical. The fact that Minicourses can be used again each year with new teachers should be kept in mind when considering competing alternatives for district funds.

Is Minicourse training completely structured or am I free to "do my own thing?"

It depends on what you mean by "doing your own thing." Minicourses were developed on the premise that teachers have sufficient professional judgment to take on the responsibility of training themselves. Each Minicourse is a totally personalized training experience, directed by the teacher, and made relevant to his/her situation. You will plan a presentation, try it, evaluate, revise, and try again. In this sense, you are "doing your own thing." For maximum effectiveness it's recommended that you follow the suggested procedures fairly closely to begin with, gradually adding techniques of your own.

Aren't there other, less structured ways to learn the same skills?

Do you mean by reading about them in a textbook, or observing a master teacher, or listening to a lecture? Probably not. The Minicourse is distinctive because it uses an active learning approach, rather than a passive one. Teachers are being *told* only about 10% of the time, *shown* about 20% of the time, with the rest of the time devoted to *doing*: planning lessons, microteaching, reteaching. Most teachers acquire skills through trial-and-error experiences. Minicourses systematically focus on designated skills that help teachers make dramatic changes in their teaching methods and procedures. They provide direction for the "trial" and allow the "error" to be made outside the classroom.

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- Individualizing Instruction in Mathematics
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Doris Smith
Far West Laboratory
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San Francisco, California 94103

TEACHER REACTIONS

As with any innovation, teachers have had different reactions to Minicourses. The following are representative comments:

- "There's nothing like it — it was a welcome change from traditional courses."
- "The skills you learn are practical. I think every part of the course will be incorporated into my teaching at some time or another."
- "At first I followed the Minicourses closely, then gradually I added new techniques of my own that I wanted to try out."
- "My approach to teaching has changed. I am more aware of my responses to the children . . . and of various ways of handling classroom situations."
- "I became a more effective speaker both in the classroom and outside of it."
- "The course guidelines make it easy to follow and grasp the skills being taught."

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(address of school)

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January 20, 1975

Individually Guided Education (IGE) has come of age; it has moved successfully from over ten years of research into the classrooms of more than 1,000 schools.

We are writing to several specific teachers and because we think your school may be a prime candidate for /I/D/E/A/'s change program for Individually Guided Education. You may have already heard positive reports on our program; but even if you have no knowledge of IGE at this point, we think you'll agree from reading the enclosed brochure that IGE is well worth considering.

The brochure tells a little bit about what Individually Guided Education is. It also outlines the advantages of IGE to students, to teachers, and to administrators. If, after reading the brochure, you feel you might like to consider a carefully developed and tested program for bringing about constructive improvements in the school learning environment, your next step is simple.

From our extensive experience with implementation of IGE, we have learned a great deal about what kinds of schools are best suited for our program. Based on that learning, we have devised a brief questionnaire which can help you, and us, evaluate the prospects for IGE in your specific school. We will be happy to send this questionnaire, plus some more basic information about IGE, if you will fill out and return the enclosed postcard.

Please take a few minutes to look through the brochure. It may be the beginning of an important advance in education at

Sincerely,

Peter Webb

Both Treatments
IGE

Peter Webb
|I|D|E|A|
1855 Folsom Street
San Francisco, California 94103

Peter Webb
Institute for Development of Educational Activities, Inc.

I would like more information about the |I|D|E|A| Change Program for Individually Guided Education.

Please send it to: _____

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Melbourne, Florida 32901

|I|D|E|A|

. . . is the educational affiliate of the Charles F. Kettering Foundation, Dayton, Ohio.

. . . was established in 1965 as the Institute for Development of Educational Activities, Inc.

. . . investigates, designs, and tests approaches to improving elementary and secondary schools.

. . . conducts a continuing exploration program to assess and report on emerging education trends.

. . . is the primary developer of the |I|D|E|A| Change program for Individually Guided Education (IGE)

. . . reports on its research efforts through films and publications to educators and others interested in improving education.

Individually Guided Education

. . . an educational innovation formulated by the research agency of the Charles F. Kettering Foundation

Both Treatments
IGE

IGE: A PERSONALIZED LEARNING PROGRAM

Individually Guided Education is an educational innovation developed by IIIDIEIAI (Institute for Development of Educational Activities, Inc.) and other research agencies. The purpose of IIIDIEIAI is to serve as an active force for improving elementary and secondary education. This purpose is encapsulated in the following three words: Continuous . . . Educational . . . Improvement.

IIIDIEIAI CREATES ACTION FROM RESEARCH

All of us recognize that students are individuals. The fact is that 25 children of the same age can differ dramatically in their intellectual abilities, their aptitudes for one kind of learning, and their preferences for one method of instruction over others.

The IIIDIEIAI Change Program for Individually Guided Education (IGE) is a response to this. Through intensive research and development, IGE was formulated. It is an innovation which realistically shapes classroom practices to fit the individual child, rather than the child to the classroom. Additionally, IGE aims to stimulate a pattern of continuous self-improvement by the staff and school.

The Change Program for IGE offers a number of *unique opportunities*.

- IGE provides the kind of environment in which educators can create and design personalized learning programs for each student.
- IGE can be implemented for the entire school, or for some part of the school, such as a subset of grade levels.
- IGE starts with whatever the community, the school board, the administration, and the teachers decide should be taught.

Children take time to strike out in their own directions through independent reading and research.

- IGE helps students take on increasing responsibility for making decisions about their own education.
- IGE can be implemented as a supplementary program if a complete organizational revision is not desired.
- IGE can operate within existing school systems; its success does not depend on changing the school's budget, physical facilities, or teacher/student ratio.
- IGE can be successfully implemented even if nobody in the school has had prior experience working with non-graded, individually oriented instruction.
- IGE allows for a wide variety of learning experiences; IGE children learn and grow "one at a time, together."

IGE IS NOT FOR EVERYONE

The IIIDIEIAI Change Program for IGE was formulated according to the premise that differences between students are sufficiently large enough to justify a significant departure from existing practice, to obtain a more individualized approach. Concurrently, IIIDIEIAI recognizes that the differences in educators is such that the Change Program for IGE *is not for everyone*. Some teachers feel comfortable with the approach, while others do not. In fact, before an IIIDIEIAI representative would even approach a school, the educator who would implement such a program is given a questionnaire which is designed to assist that individual in determining for himself, the potential compatibility between himself and IGE.

THE IGE IMPACT

IGE utilization has grown from 125 schools in 1970 to more than 1000 elementary schools in 33 states plus American-sponsored schools in 36 foreign countries. "On-going" IGE Programs have been evaluated by independent agencies. Given its uniqueness, the results have naturally been mixed, but generally they have been very encouraging.

In fact, overall, there is substantial agreement among teachers, administrators, parents, and students who have been connected with an IGE Program that IGE has a positive impact.

There are many reasons that have precipitated these acclamations. The climate of IGE schools has been said to open up. This "opening" promotes intellectual endeavors, achievements, respect for others, and increased interpersonal interaction. Additionally, the possibilities for IGE application are generally very broad. IGE has been shown to work equally well for fast and slow learners, for the culturally advantaged and the culturally different, and in modern and old school facilities.

One concern sometimes expressed by IGE teachers pertains to its implementation time. This is a consequence of two factors. IGE is a dramatic departure from existing practice and thereby one should expect an acclimation period. Secondly, IGE is a comprehensive program. As a result, detailed planning is a necessity, perhaps beyond that to which a teacher is normally accustomed. IGE requires a cooperative effort — it requires coordination between your school's IGE teachers, the league, the intermediate agency, and IIIDIEIAI. However, this coordination permits you to utilize the collective knowledge and experience of others to improve your program. Thus, it boils down to an individual decision as to whether the opportunity to utilize the resources of the "group" and the fulfillment of the IGE outcomes are commensurate with the implementation time requirements. For most IGE teachers, the advantages of IGE far outweigh their concern for the implementation time. But clearly, IGE is not for everyone.

The IGE Program and its impact are unique in education, but its cost is not unusual. For most IGE schools, the budgets for books, supplies, and audiovisual materials appear *not* to differ significantly from "traditional" schools. Moreover, with few exceptions, IGE schools do *not* utilize more teachers than would be expected in a "traditional" program.

HOW IGE GOES TO SCHOOL

IGE is truly an educational innovation. Even in its operationalization it is unique. IIIDIEIAI does not work directly with participating IGE schools. Instead, the program is carried out through cooperating colleges and universities, state education agencies, central offices of school districts, and other institutions. These affiliate institutions work closely with their schools to facilitate the IGE process.

The Change Program for IGE brings together into "leagues" small clusters of schools committed to achieving IGE outcomes. This means that each IGE school belongs to a league of 5 to 15 schools which help each other by sharing useful ideas and experiences.

The leagues, intermediate agencies, and IIIDIEIAI work together in the implementation of the Change Program. Teachers solve problems and learn new skills through inservice programs which utilize the collective knowledge and experience of the members of this group. Sometimes resource people are brought in from other IGE schools. These are working teachers who have tried several methods and have found that certain ones are more effective in meeting their student needs. At other times, teachers visit league schools to observe how teachers there work with students.

Students working together on special projects is common to all the IGE Programs from elementary through high school.

IGE AND YOUR SCHOOL

The information in this pamphlet is designed to acquaint you with the IIIDIEIAI Change Program for IGE. IGE is truly an educational innovation — one researched, developed, and tested to accomplish the goals of a distinct group of educators. It is not for everyone. Some teachers will feel comfortable with IGE, while others will not.

We recognize that this is an individual decision. Consequently, no representative from the IIIDIEIAI Change Program will call on you unless you request the visit. But before making up your mind on IGE, we would like to send you a more extensive pamphlet on IGE. There is a pre-addressed postage-paid post card included so that you may gain additional information.

APPENDIX 3: Explanation of Discrepancies Treated

MINICOURSES

Discrepancies treated in General Strategy:

Support - Outside funding would be needed to adopt the product.

Cost - School can not afford the product.

Product/Process - There are objections to going through a defined process of activities.

Structured - There are objections to adhering to a predetermined schedule.

Materials - School doesn't have a videotape machine.

Discrepancies treated in Target Strategy:

Disruptiveness - Normal classroom procedures would be disrupted.

Theory - There is resistance to using the microteaching approach to change teacher behavior.

Space - Access to microteaching space is a problem.

Horizontal/Vertical - School wants more "grade-specific" Minicourses than general ones.

Materials - School doesn't have a videotape machine.

MACOS

Discrepancies treated in General Strategy:

Cost - School can not afford the product.

Early/Late Feedback - School needs quick information on results of program.

Support - Outside funding would be needed to adopt the product.

Training - School dislikes training requirement.

MACOS, cont'd.

Discrepancies treated in Target Strategy:

Early/Late Feedback - School needs quick information on results of program.

Horizontal/Vertical - School wants program to include most grades.

Target - Improving 5/6 grade(s) teaching is not a priority.

Subject Matter - Cultural anthropology is not a priority.

Time - School dislikes time requirement of course (i.e., a daily lesson).

IGE

Discrepancies treated in Both Strategies

Target - Not all teachers and students are in need of change.

Core/Elective - Few people in the school have had any experience with IGE or a similar system.

Information - Not aware of the product's existence.

Structured - Don't like the unstructured approach of IGE.

Complete/Supplementary - School wants to supplement the present system or change parts of it, rather than replace it.

Reorganization - Don't want to change the present organization.

Horizontal/Vertical - Concerned only with instructional systems in specific grades and/or classes.

Subject Matter - School isn't concerned with ungraded instruction.

External Support - Outside funding would be needed to adopt the product.

Early/Late Feedback - School needs quick information on results of program.

APPENDIX 4: Post-treatment Questionnaires

APPENDIX 5: Categorical Data

Data on Individual Respondents

	Number of participants	Percent of total participants
LOCATION		
Chicago	274	.59
California	191	.41
Total	465	
TITLE		
Teachers	313	.67
Principals	152	.33
RESPONDENT STATUS		
Former Respondent	426	.92
New Respondent	39	.08
NUMBER OF TREATMENTS RECEIVED		
1 Product	307	.66
2 Products	110	.24
3 Products	48	.10
INNOVATION		
Minicourse	175	.37
MACOS	123	.27
IGE	167	.36

Data by Schools

	Number Of Schools			Percent of Total Schools		
	IGE	MINI	MACOS	IGE	MINI	MACOS
LOCATION						
Chicago	33	34	20	.62	.60	.50
California	20	22	20	.38	.40	.50
Total Schools	53	56	40			
SEGMENT						
Target schools	23	15	16	.44	.27	.40
Non-target schools	30	41	24	.56	.73	.60

Treatment(s) Received	Number of Schools
1 product	9
2 products	40
3 products	16

*A participant is defined as an individual receiving 1 treatment; an individual receiving treatments for 2 products would be considered as 2 participants (in all, 378 different individuals participated).

19) Which of the following is an accurate statement about the kind of 5th-6th grade social studies program that would be adopted here?

____ We want a social studies program tailored specifically to those grade levels.

____ Right now, we have a slight preference for a program which is usable for all or most other social studies classes at other grade levels.

____ We have a definite preference for a program which cuts across all (or most) of our grade levels.

____ We would not adopt anything not tailored specifically for 5th to 6th grades.

20) What is the attitude at your school regarding the teaching of cultural anthropology?

____ Most consider that the teaching of cultural anthropology is one of our highest priorities.

____ The teaching of cultural anthropology is not of the highest priority for most although it is considered important.

____ This is not really a priority--the school is more concerned with many other areas at this time.

____ No one is concerned at this time with teaching cultural anthropology.

21) Consider that an elementary (5th-6th grade) social studies program requires 30 hours of training for teachers; would this be considered a problem at your school?

____ No, not at all.

____ Yes, but only a minor one.

____ Yes, such a requirement would probably prevent us from deciding to use the course.

____ Yes, we would never adopt a course with those training requirements.

22) Consider that a specific elementary (5th-6th grade) social studies course is designed as a one-year course (one lesson per day). Is this the schedule your school would want for such a course?

____ Yes.

____ This does not exactly fit our needs, although we could use it.

____ No, we probably could not use this.

____ No, this is way off base; we would not adopt it.

23) When a new product or program is adopted by your school, at what point in time is it best to actually be able to see the results?

____ We don't need to see such early results--we can wait a year for that.

____ We like to see results before the end of a year of use, but this is not necessary.

____ We want early knowledge of results; after 3 or 4 months of use.

____ We need quick feedback--we have to see results after a month or so of use.

NAME: _____

SCHOOL: _____

First, we'd like to ask you a few questions about your school.

1) Relative to other schools, how many different job titles (for example, teacher, principal, curriculum coordinator) would you say your school has?

____ Probably more than other schools.

____ Probably about the same as other schools.

____ Probably less than other schools.

2) When it comes to making a change, does your school have more or fewer rules and regulations to deal with?

____ We probably have more than other schools.

____ We probably have about the same number as other schools.

____ We probably have less than other schools.

3) When a decision is being made to adopt a new curriculum or educational program, how many people in your school are usually consulted?

____ No one.

____ One or two.

____ Everyone involved.

____ Everyone in the school.

4) How easy would you say it is to initiate change in your school?

____ Very easy.

____ Fairly easy.

____ Fairly difficult.

____ Very difficult.

Now we'd like to ask you some questions about Man: A Course of Study (MACOS).

5) How much do you know about MACOS?

____ Have never heard of it.

____ Have heard of it, but know very little about it.

____ Know it fairly well.

____ Know it very well.

6) Has MACOS ever been considered for use by your school?

____ No.

____ Yes, but it was rejected.

____ Yes, it is currently under consideration.

____ Yes, it is currently being used.

____ Don't know.

7) Overall, how well would you say MACOS fits the needs of your school?

____ Extremely well.
____ Quite well.
____ Fairly well.
____ Not very well.
____ Not at all.
____ Don't know.

8) Recently, we sent you a brochure describing MACOS. How well do you remember this brochure?

____ Not at all.
____ Vaguely.
____ Fairly clearly.
____ Very clearly.

9) How completely did you read the MACOS brochure?

____ Thoroughly.
____ Partially.
____ Just skimmed.
____ Not at all.

10) What do you remember most from the brochure?

_____
_____
_____
_____

11) Do you recall at the time you received the brochure whether the information was sufficient for you to form an opinion about MACOS?

____ Yes. ____ No. ____ Don't recall.

11a) If yes, is this opinion

____ Very favorable?
____ Somewhat favorable?
____ Somewhat unfavorable?
____ Very unfavorable?

12) Did you talk with anyone about MACOS after receiving the brochure? (Check as many as apply)

____ Teacher.
____ Principal.
____ Curriculum Coordinator.
____ Someone else in your school. (Please specify) _____
____ Someone outside your school. (Please specify) _____
____ Nobody.

13) Prior to these conversations, was your interest in MACOS

____ High?
____ Moderate?
____ Low?

14) After these conversations, did your interest in MACOS

____ Increase?
____ Remain about the same as before?
____ Decrease?

15) Did you discuss with others the decision to return the coupon?

____ Yes. ____ No.

15a) If yes, what was that decision?

____ Not to return any coupons.
____ To return one coupon for the school.
____ To return coupons on an individual basis.

16) The cost of MACOS is around $3000. If you wanted to adopt it, would this cost figure pose a serious problem?

____ Our school could easily work out some way to manage this.
____ Our school could work out a way to manage this, but not easily.
____ Our school probably couldn't work out a way to manage this.
____ We could not afford this under any circumstances.

17) In many schools, there is the chance to get outside funding support (e.g. Title I, Title III) for adopting elementary social studies materials. What is the situation in your school?

____ We wouldn't need any outside funding for this here.
____ We could easily get the outside funding support necessary for this kind of adoption.
____ We probably could not get the outside funding support we'd like, although this would not prevent us from adopting.
____ We probably could not get the outside support we'd like, and this would probably prevent us from adopting.
____ We couldn't get outside support for this, and this fact keeps us from adopting.

18) What is the feeling in your school as regards the need for improving teaching at the 5th and/or 6th grade levels (all abilities)?

____ There is agreement that there exists a high priority need to do something for one or both of these grade levels.
____ Improvement for one or both of these grades is desired but not of the highest priority.
____ Improvement for one or both of these grades is not even a significant priority--the school is more concerned with other matters at this time.
____ No one is concerned at this time with improvement at one or both of these grade levels.

21) The Microteaching approach to teacher education generally involves having individual teachers practice specific skills with just a few students in a short lesson, i.e. in a "micro" situation. Educational research has shown this to be an effective way to change teacher behavior. Which of the following statements is accurate in regard to how such a notion is regarded in your school?

____ General agreement that this notion can provide a valid guideline for inservice training. There would be no resistance to adopting a program with this approach.

____ Some would resist such a notion; some would not--a program like this could be adopted here.

____ There would be a great deal of resistance to such a program--it probably could not get adopted.

____ Such a program would not be adopted by our district.

22) Does your school have easy access to a room, big enough for 9 or 10 chairs, which could be freed during regular school hours for inservice training?

____ Yes.

____ No, but getting access to one would be only a minor problem.

____ No, and getting access to one would be very difficult.

____ No, and getting access to one would be impossible.

23) A small, closed-circuit videotape system costs $1800 to install. Does your school have access to one?

____ Yes.

____ No, but we could easily manage to install one or get access to one if we found we needed it.

____ No, it would be difficult for us to install one or get access to one, even if we needed it.

24) Which of the following is accurate as regards the kind of inservice course needed for your school right now?

____ We want inservice programs and materials appropriate for teachers of all elementary grades and subjects. We don't want courses geared for some but not all of our elementary teachers.

____ Right now our need is for training for teachers of certain grades and courses although we recognize that more general courses can benefit them as well.

____ Right now, we are concerned with teachers in certain courses and grade levels--we probably couldn't use something general across subject and grade specialties.

____ Our need is subject and grade specific--we won't be adopting anything not tailored specifically for these teachers.

Thank you very much. Please return the questionnaire in the envelope provided.

NAME: _____

SCHOOL: _____

First, we'd like to ask you a few questions about your school.

1) Relative to other schools, how many different job titles (for example, teacher, principal, curriculum coordinator) would you say your school has?

____ Probably more than other schools.

____ Probably about the same as other schools.

____ Probably less than other schools.

2) When it comes to making a change, does your school have more or fewer rules and regulations to deal with?

____ We probably have more than other schools.

____ We probably have about the same number as other schools.

____ We probably have less than other schools.

3) When a decision is being made to adopt a new curriculum or educational program, how many people in your school are usually consulted?

____ No one.

____ One or two.

____ Everyone involved.

____ Everyone in the school.

4) How easy would you say it is to initiate change in your school?

____ Very easy.

____ Fairly easy.

____ Fairly difficult.

____ Very difficult.

Now, we'd like to ask you some questions about Minicourses.

5) How much do you know about Minicourses?

____ Have never heard of them.

____ Have heard of them, but know very little about them.

____ Know them fairly well.

____ Know them very well.

6) Have Minicourses ever been considered for use by your school?

____ No.

____ Yes, but they were rejected.

____ Yes, they are currently under consideration.

____ Yes, they are currently being used.

____ Don't know.

7) Overall, how well would you say Minicourses fit the needs of your school?

____ Extremely well.

____ Quite well.

____ Fairly well.

____ Not very well.

____ Not at all.

____ Don't know.

8) Recently we sent you a brochure describing Minicourses. How well do you remember this brochure?

____ Not at all.

____ Vaguely.

____ Fairly clearly.

____ Very clearly.

9) How completely did you read the Minicourse brochure?

____ Thoroughly.
____ Partially.
____ Just skimmed.
____ Not at all.

10) What do you remember most from the brochure?

_____
_____
_____
_____

11) Do you recall at the time you received the brochure whether the information was sufficient for you to form an opinion about Minicourses?

____ Yes. ____ No. ____ Don't recall.

11a) If yes, is this opinion

____ Very favorable?
____ Somewhat favorable?
____ Somewhat unfavorable?
____ Very unfavorable?

12) Did you talk with anyone about Minicourses after receiving the brochure? (Check as many as apply)

____ Teacher.
____ Principal.
____ Curriculum Coordinator
____ Someone else in your school. (Please specify) _____
____ Someone outside your school. (Please specify) _____
____ Nobody.

13) Prior to these conversations, was your interest in Minicourses

____ High?
____ Moderate?
____ Low?

14) After these conversations, did your interest in Minicourses

____ Increase?
____ Remain about the same as before?
____ Decrease?

15) Did you discuss with others the decision to return the coupon?

____ Yes. ____ No.

15a) If yes, what was that decision?

____ Not to return any coupons.
____ To return one coupon for the school.
____ To return coupons on an individual basis.

16) In some schools, there is the chance to get outside funding support (e.g. Title I, III) for adopting inservice training materials. What is the situation in your school?

____ We wouldn't need any outside funding for this here.
____ We could easily get the outside funding support necessary for this kind of adoption.
____ We probably could not get the outside support we'd like, although this would not prevent us from adopting.
____ We couldn't get outside support for this, and this fact keeps us from adopting.

17) Consider that start-up cost for a Minicourse is $1500. In addition, it costs about $3 per teacher plus 15 hours of release time to use. The course can be used year after year with all elementary teachers. Does this price seem reasonable?

____ Our school could easily work out some way to manage this.
____ Our school could work out a way to manage this, but not easily.
____ Our school probably couldn't work out a way to manage this.
____ We could not afford this under any circumstances.

18) What is the attitude in your school toward inservice training which is structured (i.e. predetermined, set procedures are used)?

____ Some object to this approach, but this probably would not prevent us from adopting a program using it.
____ A program using this approach probably would not be adopted here.
____ A program using this approach would not be adopted here.

19) In your school, would there be any objection to adopting a program which requires that you adopt a method as well, i.e. as opposed to adopting just materials and developing your own program for using them?

____ There would be no objection. In our school, there is a preference for programs which combine materials with methods.
____ In our school, this kind of program is not really preferred, but it could be adopted anyway.
____ In our school, such a program would probably not be adopted. We want to adopt just materials and put together our own program for using them.
____ In our school, we would never adopt a program which involves adopting a method as well as a set of materials.
____ In itself, this would not matter one way or the other.

20) Consider that an inservice training course requires 15 hours for each teacher, the participation of a few students, the use of a classroom, and access to a videotape system. Obviously, this would displace some other activities; perhaps it would be disruptive in other ways. Try to estimate the extent to which a program like this would be disruptive in your school.

____ Probably disruption would be negligible.
____ Such a course would be fairly disruptive.
____ Such a course would be extremely disruptive.
____ Such a course would be so disruptive that it could not be adopted here.

19) Which of the following statements comes closest to describing the attitude at your school regarding non-graded instruction?

____ This is considered by most to be a high priority need of our school.
____ This is considered important but not of the highest priority for most.
____ This is not considered to be a priority--the school is more concerned with other areas at this time.
____ No one is concerned at this time with non-graded instruction.

20) To adopt a new organizational arrangement would mean reorganizing the present system. What do you think would be the reaction to that here?

____ Virtually everyone would welcome the reorganization.
____ Most would welcome the change, some would not.
____ Most would not welcome the change.
____ Virtually no one would welcome the change.

21) What is the attitude in your school toward using programs which are unstructured, i.e. no predetermined, set procedures?

____ This approach is acceptable to everyone.
____ Some object to this, but this probably would not prevent us from adopting such a program.
____ An unstructured program probably would not be adopted here.
____ An unstructured program would not be adopted here.

22). To your knowledge, has anyone in your school had any experience working with an organizational arrangement for non-graded instruction?

____ Yes, many have.
____ Yes, a few have.
____ Yes, one or two persones have.
____ No.

23) Right now, what groups in your school are most in need of reform or change? (Check one or two responses)

____ Teachers at certain grade levels.
____ Students at certain grade levels.
____ All teachers.
____ All students.

Thank you very much. Please return this questionnaire in the envelope provided.

NAME: _____

SCHOOL: _____

First, we'd like to ask you a few questions about your school.

1) Relative to other schools, how many different job titles (for example, teacher, principal, curriculum coordinator) would you say your school has?

____ Probably more than other schools.
____ Probably about the same as other schools.
____ Probably less than other schools.

2) When it comes to making a change, does your school have more or fewer rules and regulations to deal with?

____ We probably have more than other schools.
____ We probably have about the same number as other schools.
____ We probably have less than other schools.

3) When a decision is being made to adopt a new curriculum or educational program, how many people in your school are usually consulted?

____ No one.
____ One or two.
____ Everyone involved.
____ Everyone in the school.

4) How easy would you say it is to initiate change in your school?

____ Very easy.
____ Fairly easy.
____ Fairly difficult.
____ Very difficult.

Now we'd like to ask you some questions about Individually Guided Education (IGE).

5) How much do you know about IGE?

____ Have never heard of it.
____ Have heard of it, but know very little about it.
____ Know it fairly well.
____ Know it very well.

6) Has IGE ever been considered for use by your school?

____ No.
____ Yes, but it was rejected.
____ Yes, it is currently under consideration.
____ Yes, it is currently being implemented.
____ Don't know.

7) Overall, how well would you say IGE fits the needs of your school?

____ Extremely well.
____ Quite well.
____ Fairly well.
____ Not very well.
____ Not at all.
____ Don't know.

8) Recently we sent you a brochure describing IGE. How well do you remember this brochure?

____ Not at all.
____ Vaguely.
____ Fairly clearly.
____ Very clearly.

9) How completely did you read the IGE brochure?

____ Thoroughly.
____ Partially.
____ Just skimmed.
____ Not at all.

10) What do you remember most from the brochure?

_____
_____
_____
_____

11) Do you recall at the time you received the brochure whether the information was sufficient for you to form an opinion about IGE?

____ Yes. ____ No. ____ Don't recall.

11a) If yes, is this opinion

____ Very favorable?
____ Somewhat favorable?
____ Somewhat unfavorable?
____ Very unfavorable?

12) Did you talk with anyone about IGE after receiving the brochure? (Check as many as apply)

____ Teacher.
____ Principal.
____ Curriculum Coordinator.
____ Someone else in your school. (Please specify) _____
____ Someone outside your school. (Please specify) _____
____ Nobody.

13) Prior to these conversations, was your interest in IGE

____ High?
____ Moderate?
____ Low?

14) After these conversations, did your interest in IGE

____ Increase?
____ Remain about the same as before?
____ Decrease?

15) Did you discuss with others the decision to return the coupon?

____ Yes. ____ No.

15a) If yes, what was that decision?

____ Not to return any coupons.
____ To return one coupon for the school.
____ To return coupons on an individual basis.

16) Right now, would your school want to adopt an instructional system to cut across all grade levels and all classes?

____ Yes.
____ No, but we would be open to considering it.
____ No, our concerns involve only specific grades and/or classes. Under certain circumstances, however, we might consider it.
____ No, we would not consider it at this time.

17) Which of the following is most accurate in regard to the scope of organizational arrangement needed at your school?

____ We would like to completely replace or revise our present set-up.
____ We like our present set-up but would be willing to revamp much of it.
____ We would not want to change very much of our present set-up.
____ We would not want to change our present set-up at all.

18) What is your estimate of the number of people in your school who have heard of IGE?

____ Virtually everyone.
____ About half.
____ Very few.
____ No one.

APPENDIX 6: Weighted Measures

Methods for developing an overall index from a number of items has been the subject of research for over 50 years (Charters 1020, National Academy of Sciences 1921). Most of the early efforts justifying the use of equal weighting for items were based on the finding that indices formed from an equally weighted sum of items provided a reasonably good prediction of the property of interest and were much easier to form than indices derived from a sum of differential weighted items (Lawshe and Shucker 1959). Schmidt (1971) demonstrated empirically that, in some situations, equal weighted indices actually provide <u>better</u> predictions than models using differrential weights. The characteristics of the situation examined by Schmidt that determined whether an equally weighted model of a differentially weighted model will provide better predictions are as follows:

1) <u>The sample size used to estimate the weight</u>. In terms of the discrepancy model, this would be the number of schools used to determine the weights. With a large sample size, the weights can be estimated very accurately and thus it is better to use a differentially weighted model to develop an overall index. With a small sample size, there will be substantial error in estimating the appropriate weights and thus an equally weighted model will provide better predictions.
2) <u>The average correlation betwen items used to form the overall index</u>. When the items are highly intercorrelated, there will be substantial errors in deriving the estimates. In these situations, it is difficult to accurately separate the effect of each item on the overall index, thus an equally weighted model will provide a better prediction.

3) The number of items used to form the overall index. When there are many items used to form the index, the accuracy of estimating weights for each item is reduced, and an equally weighted model again provides a better prediction.

Recently, Einhorn and Hogarth (1975) have attempted to develop an analytical solution for the problem of determining the appropriate weighting scheme for forming a composite index from a number of items. Unfortunately, this work has limited use due to the nature of assumptions made and the conflicting specifications for the estimating and predicting model. Srinivasan (1975) has developed a more appropriate analytical solution. In addition to the three previously mentioned characteristics, Srinivasan's solution incorporates the following two characteristics:

1) The accuracy with which the index can predict the overall property of interest. The predictive power of the index i measured by the percentage of variance it explains (the R^2 of the discrepancy index in predicting the true discrepancy in the school). If the predictive power is very high, a differentially weighted model will be better.
2) The variance of the weight. If there is a lot of variability of the weights, a differentially weighted model will be better.

These two characteristics of the situation must be assessed judgmentally in the case of the discrepancy model; however, realistic maximums can be determined.

The following conditions describe the assumptions under which the discrepancy model has been used:

1. The number of items used to form the index is 10 or greater.
2. The average intercorrelation between items (individual discrepancies) is .5 or more.
3. The discrepancy model explained 50% or more of variance in the true discrepancy in a school (R^2=.5). This ia a realistic assumption given the limited amount of information used to develop the individual discrepancies.
4. The variability of the weights is a realistic maximum.

Using Srinivasan's solution and these conditions, an equally weighted model will provide a better prediction of overall discrepancy, when less than 119 schools are available to estimate the weights for a particular innovation. In addition, the difference in the accuracy of the equally weighted will be less than 5% worse, if less than 373 schools are available. Since fewer than 50 schools were available to estimate the weights for this study, the equal weighting model used is theoretically superior.